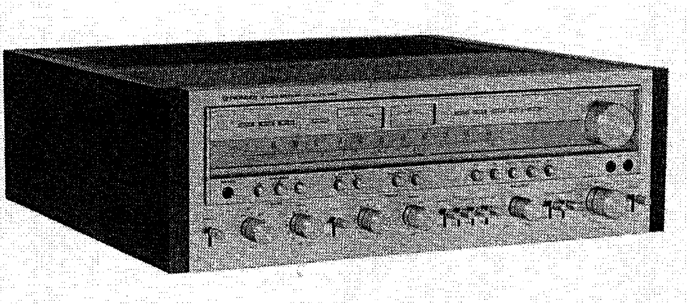
AM/FM STEREO RECEIVER

SX-1050

KCU, S

Service Manual



PIONEER®

CONTENTS

1. SPECIFICATIONS 4
2. FRONT PANEL FACILITIES 6
3. CONNECTION DIAGRAM 9
4. BLOCK DIAGRAM 11
5. LEVEL DIAGRAM 13

6. CIRCUIT DESCRIPTIONS

6.1 AM Tuner 14
6.2 FM Tuner 14
6.3 Equalizer Amplifier 16
6.4 Buffer Amplifier 17
6.5 Tone Control Amplifier 17
6.6 Filter Amplifier 18
6.7 Power Amplifier 19
6.8 Protection Circuit 20
6.9 Surge Current Suppressor Circuit 21
7. DISASSEMBLY 22

8. PARTS LOCATIONS

8.1 Front View 1 25
8.2 Front View 2 (with Panel Removed) 27
8.3 Top View 29
8.4 Bottom View 31
8.5 Rear View 33
9. DIAL CORD STRINGING 35

10. ADJUSTMENTS

10.1 AM Section 37
10.2 FM Section 38
10.3 Power Amplifier Section 42
11. EXPLODED VIEWS 44

12. SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PARTS LIST

12.1 Schematic Diagram and Miscellaneous Parts 54
12.2 Tuner Assembly (AWE-067) 59
12.3 Equalizer Amplifier Assembly (AWF-020) 66
12.4 Function Switch Assembly (AWS-094) 69
12.5 MIC Jack Assembly (AWX-097) 71
12.6 Flat Amplifier Assembly (AWG-040) 72

12.7 5P Connector Assembly (AWX-062) 76
12.8 Control Amplifier Assembly (AWG-041) 77
12.9 De-emphasis Switch Assembly (AWS-099) 80
12.10 Filter Amplifier Assembly (AWM-089) 81
12.11 Power Amplifier Assembly (AWH-047) 84
12.12 Protection Circuit Assembly (AWM-090) 89
12.13 Speaker Switch Assembly (AWS-095) 92
12.14 Power Supply Circuit Assembly-A (AWR-103) 94
12.15 Surge Current Suppressor Assembly (AWX-098) 97
12.16 Power Supply Circuit Assembly-B (AWR-104) 98
13. PACKING 101
14. PARTS LIST OF EXPLODED VIEWS 102
15. ADDITIONAL INFORMATION (SX-1050/s) 104

MODEL SX-1050 COMES IN TWO VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KCU	120V only	CSA (Canada) and UL (U.S.A) approved with de-emphasis selector switch (25μs/75μs)
S	110V, 120V, 220V and 240V (Switchable)	General export model with de-emphasis selector switch (25μs/50μs/75μs)

1. SPECIFICATIONS

Semiconductors

FETs	4
ICs	5
Transistors	79
Diodes	49

Power Amplifier Section

Continuous Power Output from 20 Hertz to 20,000 Hertz (Both channels driven)	120 watts per channel (8 ohms) 170 watts per channel (4 ohms)
Total Harmonic Distortion (20 Hertz to 20,000 Hertz, from AUX)	
Continuous Rated Power Output	No more than 0.1%
60 watts per channel power output, 8 ohms	No more than 0.05%
1 watt per channel power output, 8 ohms	No more than 0.06%
Intermodulation Distortion (50 Hertz : 7,000 Hertz = 4 : 1, from AUX)	
Continuous Rated Power Output	No more than 0.1%
60 watts per channel power output, 8 ohms	No more than 0.05%
1 watt per channel power output, 8 ohms	No more than 0.06%
Frequency Response	7Hz to 90,000Hz $^{+0}_{-1}$dB
Input Sensitivity/Impedance	
POWER AMP IN	1 V/50k ohms
Output	
Speaker	A, B, C, A+B, B+C, A+C
Headphone	Low Impedance
Damping Factor (20Hz to 20,000Hz, 8 ohms)	25
Hum and Noise (IHF, short-circuited, A Network)	100dB

Preamplifier Section

Input Sensitivity/Impedance		
PHONO 1		2.5mV/50k ohms
PHONO 2		2.5mV/50k ohms
MIC		6.5mV/50k ohms
AUX		150mV/50k ohms
TAPE PLAY 1		150mV/50k ohms
TAPE PLAY 2		150mV/50k ohms
TAPE PLAY 2 (DIN connector)		150mV/50k ohms
PHONO Overload Level (T.H.D. 0.1%)		
PHONO 1		300mV (1kHz)
PHONO 2		300mV (1kHz)
Output Level/Impedance		
TAPE REC 1		150mV
TAPE REC 2		150mV
TAPE REC 2 (DIN connector)		30mV/80k ohms
PRE OUT		1V/1k ohms
Total Harmonic Distortion (20Hz ot 20,000Hz, 1V output)		No more than 0.05%
Frequency Response		
PHONO (RIAA equalization)		30Hz to 15,000Hz ±0.2dB
AUX, TAPE PLAY		10Hz to 50,000Hz $^{+0}_{-1}$dB
Tone Control		
BASS	MAIN	±10dB (100Hz)
	SUB	± 5dB (50Hz)
TREBLE	MAIN	±10dB (10kHz)
	SUB	± 5dB (20kHz)
Filter		
LOW		30Hz (12dB/oct.)
HIGH		8kHz (12dB/oct.)
Loudness Contour (Volume control set at −40dB position)		+6dB (100Hz), +3dB (10kHz)
Hum and Noise (IHF, short-circuited, A Network, rated power)		
PHONO		75dB
AUX, TAPE PLAY		90dB
Muting		−20dB

FM Section

Usable Sensitivity		MONO	10.3dBf (3.6μV/300Ω)
		STEREO	15.7dBf (6.7μV/300Ω)
Usable Sensitivity (IHF '58)			1.8μV
50dB Quieting Sensitivity		MONO	14.5dBf (5.8μV/300Ω)
		STEREO	36.0dBf (69μV/300Ω)
Signal to Noise Ratio	at 65dBf	MONO	78dB
		STEREO	73dB
Distortion at 65dBf	100Hz	MONO	0.1%
		STEREO	0.25%
	1kHz	MONO	0.1%
		STEREO	0.25%
	6kHz	MONO	0.4%
		STEREO	0.4%
Frequency Response			30Hz to 15,000Hz $^{+0.3}_{-1.0}$dB
Capture Ratio			1.0dB
Alternate Channel Selectivity			80dB
Spurious Response Ratio			100dB
Image Response Ratio			85dB
IF Response Ratio			100dB
AM Suppression Ratio			55dB
Muting Threshold			11dBf (3.9μV/300Ω)
Stereo Separation			45dB (1kHz), 30dB (30Hz ~ 15kHz)
Subcarrier Product Ratio			73dB
SCA Rejection Ratio			73dB
Antenna Input			300 ohms balanced 75 ohms unbalanced

AM Section

Sensitivity (IHF, Ferrite antenna)	300μV/m
(IHF, Ext. antenna)	15μV
Selectivity	40dB
Signal to Noise Ratio	55dB
Image Response Ratio	65dB
IF Response Ratio	85dB
Antenna	Built-in Ferrite Loopstick Antenna

Miscellaneous

Power Requirements	120V 60Hz
Power Consumption	490W (UL) 870W (max.)
Dimensions	526.6(W)x173(H)x453.5(D) mm 20-3/4(W)x6-13/16(H)x17-7/8(D) in
Weight	23.4kg (51 lb 8 oz)

Furnished Parts

FM T-type Antenna	1
Operating Instructions	1
Hex. Wrench	1

NOTE:
Specifications and the design subject to possible modification without notice due to improvements.

2. FRONT PANEL FACILITIES

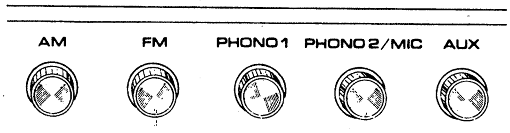
FUNCTION SELECTOR BUTTONS

To select the program source, push each button as follows:
NOTE: Only one FUNCTION button should be depressed at a time.

AM . . . . For AM broadcast reception.

PHONO 1 . . . . To operate a turntable connected to the PHONO 1 input jacks.

AUX . . . . For listening to an audio component (cartridge tape player, TV sound tuner, etc.) connected to the AUX input jacks.

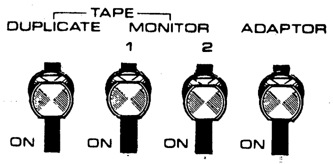


FM . . . . For FM broadcast reception. The STEREO indicator lights up when the broadcast is in stereo.

PHONO 2/MIC . As above for PHONO 2 jacks, or for reproduction through microphones connected to the MIC jacks on the front panel. Note, when the microphones are plugged in the turntable connected to the PHONO 2 jacks cannot be used.

TAPE DUPLICATE SWITCH

Set this switch in the ON (down) position to duplicate or edit a recorded tape using two tape decks.



TAPE MONITOR (1, 2) SWITCHES

1 . . . . . With a tape deck connected to the TAPE 1 jacks (REC and PLAY), either playback or monitoring of a recording in progress are possible.

2 . . . . . Same as in 1 above, with a tape deck connected to the TAPE 2 jacks (REC and PLAY).

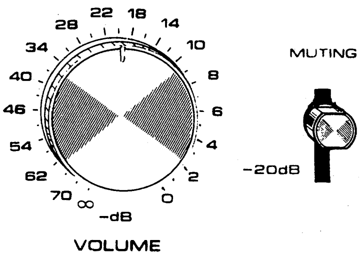
For normal use, leave in the OFF (up) position.

ADAPTOR SWITCH

When employing adaptor components, such as a graphic equalizer adaptor, RG processor, or Dolby NR adaptor, depress this ADAPTOR switch to ON.

Precise volume control

The extremely high power output of the SX-1050 can be finely controlled by combining the calibrated VOLUME control and the MUTING switch. The MUTING switch can also be used to briefly lower the volume when changing records or tapes.



FRONT PANEL FACILITIES

SPEAKER BUTTONS

Three sets of speaker terminals, A, B, and C, are provided on the rear panel, and the required speaker systems can be selected by depressing the SPEAKERS buttons as follows:

A . . . . Speaker systems A operate
B . . . . Speaker systems B operate
C . . . . Speaker systems C operate

NOTES:

1. *When any two buttons (A+B, B+C, C+A) are depressed simultaneously, the corresponding pairs of speaker systems will come into operation. However, it is not possible to operate all three speaker systems at the same time, even though all the buttons are depressed.*
2. *For private listening through headphones, return all the SPEAKERS buttons to the OFF (undepressed) position.*

PHONES OUTPUT JACK

Accepts stereo headphones.

POWER SWITCH

After turning this switch ON there is a delay of some 3 to 6 seconds, during which time the protection circuit operates to eliminate unpleasant noise.

TWIN BASS CONTROLS

Adjust low frequency tone.

100Hz:	Adjusts frequency band below 400Hz. Control effectiveness at 100Hz is ±10dB.
50Hz:	Provides additional control for the frequency band below 200Hz. Control effectiveness at 50Hz is ±5dB.

TONE SWITCH

In the OFF (up) position the BASS and TREBLE controls are bypassed, the amplifier section to operate with a flat frequency response regardless of the tone control settings.

FM TUNING METER

With the SIGNAL meter needle deflected to the right, make fine adjustment by centering the FM TUNING meter needle (indicating optimum reception).

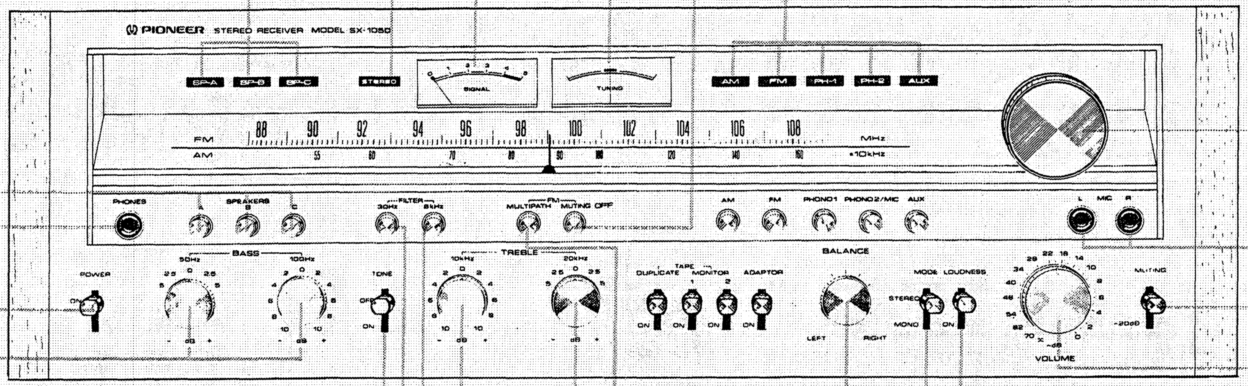
SIGNAL METER

For AM and FM station tuning.

AM tuning:	Tune for maximum deflection of the SIGNAL meter needle to the right.
FM tuning:	Both the SIGNAL and FM TUNING meters work together (see FM TUNING METER).

FM STEREO INDICATOR

SPEAKER SYSTEM INDICATORS



LOW CUT FILTER SWITCH

When low-pitched rumble (from turntable motor or other source) is obstrusive, depress this button to provide 12dB/octave attenuation at frequencies below 30Hz. If no interference is experienced, release this button.

HIGH CUT FILTER SWITCH

When high frequency scratch noise (from worn records or other source) is unpleasant, depress this button to provide 12dB/octave attenuation at frequencies above 8kHz. If there is no interference, release this button.

TUNING KNOB

Select the station and tune for optimum reception by observing the SIGNAL meter for AM stations, and both SIGNAL and TUNING meters for FM stations.

FM MUTING BUTTON

Leave this button undepressed (in the ON position) to suppress unpleasant interstation noise while tuning between stations. Low-strength signals may also be suppressed by this function, so to pick up a weak station depress this button to the OFF position.

PROGRAM SOURCE INDICATORS

MULTIPATH SWITCH

When selecting the best position for the FM antenna, depress this button so that multipath noise is heard from the speaker systems. To listen to FM broadcasts, release this button.

TWIN TREBLE CONTROLS

Adjusts high frequency tone.

10kHz:	Adjusts frequency band above 2.5kHz. Control effectiveness at 10kHz is ±10dB.
20kHz:	Provides additional control for the frequency band above 5kHz. Control effectiveness at 20kHz is ±5dB.

MIC JACKS

Accept standard 6 mmϕ microphone plugs.

AUDIO MUTING SWITCH – 20dB

Depress this switch to attenuate the audio output by 20dB. This convenient feature saves having to disturb the VOLUME control, for example when answering the telephone.

VOLUME CONTROL

Adjusts output level of speakers and headphones.
Scale is graduated in dB, and when used in conjunction with the MUTING switch, finer and wider range attenuation can be performed.

LOUDNESS SWITCH

Depress this switch when listening at low volume. The frequency response of the human ear varies according to the listening volume, and the depressed position compensates for hearing response by emphasizing the bass and treble.

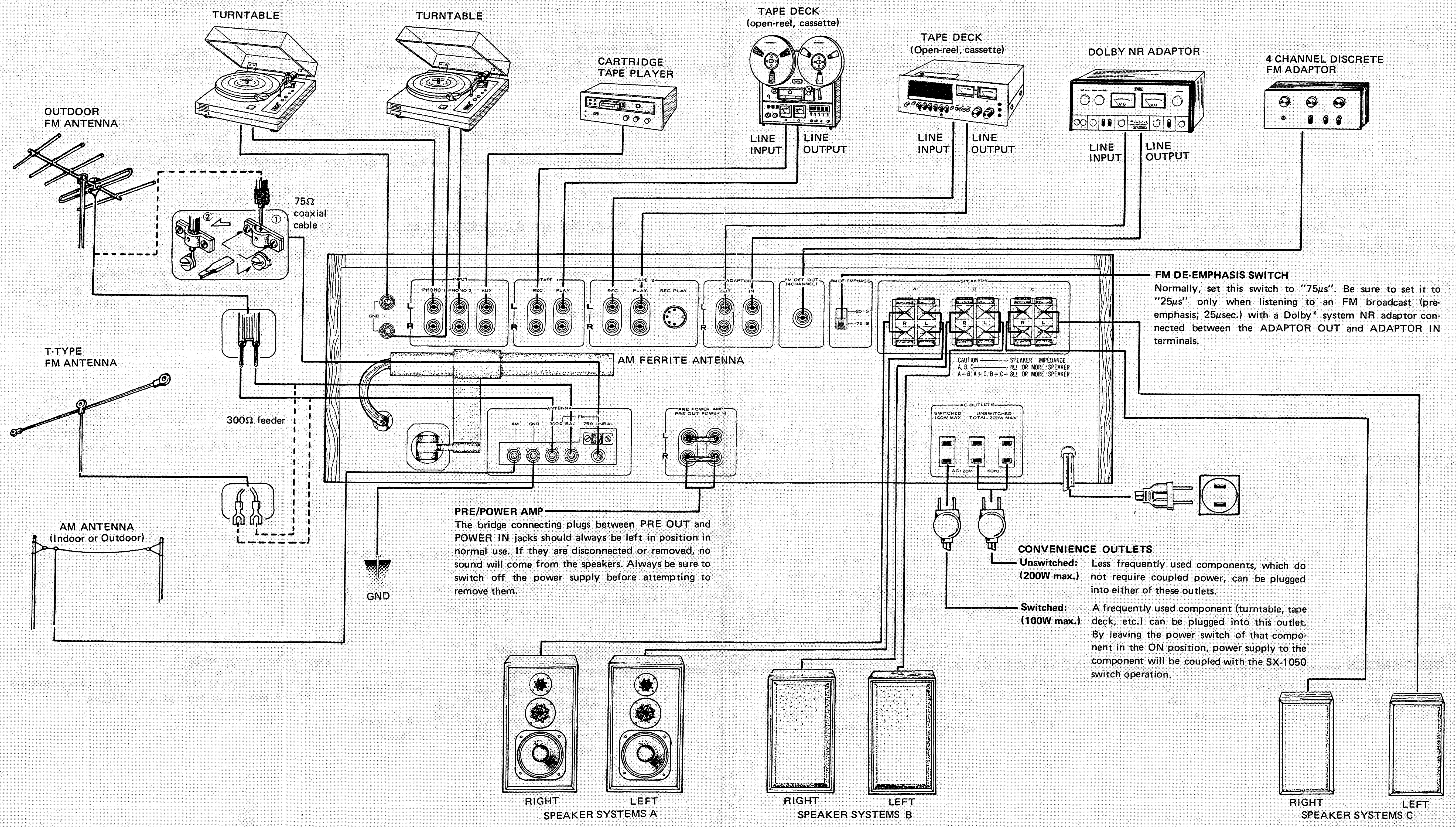
MODE SWITCH

For stereo playback, leave this switch undepressed (or depress to release, if already depressed). When depressed for MONO playback, left and right channel stereo signals will be mixed to produce monophonic sound from both speaker systems.

BALANCE CONTROL

Adjusts the balance between the sound volume from the left and right speaker systems or headphones.

3. CONNECTION DIAGRAM


TURNTABLE
TURNTABLE
CARTRIDGE TAPE PLAYER
TAPE DECK (open-reel, cassette)
TAPE DECK (Open-reel, cassette)
DOLBY NR ADAPTOR
4 CHANNEL DISCRETE FM ADAPTOR
LINE INPUT
LINE OUTPUT
LINE INPUT
LINE OUTPUT
LINE INPUT
LINE OUTPUT
OUTDOOR FM ANTENNA
75Ω coaxial cable
②
①
T-TYPE FM ANTENNA
300Ω feeder
AM ANTENNA (Indoor or Outdoor)
GND
GND
L
R
INPUT
PHONO 1
PHONO 2
AUX
TAPE 1
REC
PLAY
TAPE 2
REC
PLAY
REC PLAY
ADAPTOR
OUT
IN
FM DET OUT (4CHANNEL)
FM DE-EMPHASIS
25 S
75 S
SPEAKERS
A
B
C
R
L
AM FERRITE ANTENNA
CAUTION — SPEAKER IMPEDANCE
A, B, C — 4Ω OR MORE/SPEAKER
A+B, A+C, B+C — 8Ω OR MORE SPEAKER
ANTENNA
FM
AM
GND
300Ω BAL
75Ω UNBAL
PRE POWER AMP
PRE OUT
POWER IN
AC OUTLETS
SWITCHED 100W MAX
UNSWITCHED TOTAL 200W MAX
AC120V
60Hz
RIGHT
LEFT
SPEAKER SYSTEMS A
RIGHT
LEFT
SPEAKER SYSTEMS B
RIGHT
LEFT
SPEAKER SYSTEMS C

FM DE-EMPHASIS SWITCH

Normally, set this switch to "75µs". Be sure to set it to "25µs" only when listening to an FM broadcast (pre-emphasis; 25µsec.) with a Dolby* system NR adaptor connected between the ADAPTOR OUT and ADAPTOR IN terminals.

PRE/POWER AMP

The bridge connecting plugs between PRE OUT and POWER IN jacks should always be left in position in normal use. If they are disconnected or removed, no sound will come from the speakers. Always be sure to switch off the power supply before attempting to remove them.

CONVENIENCE OUTLETS

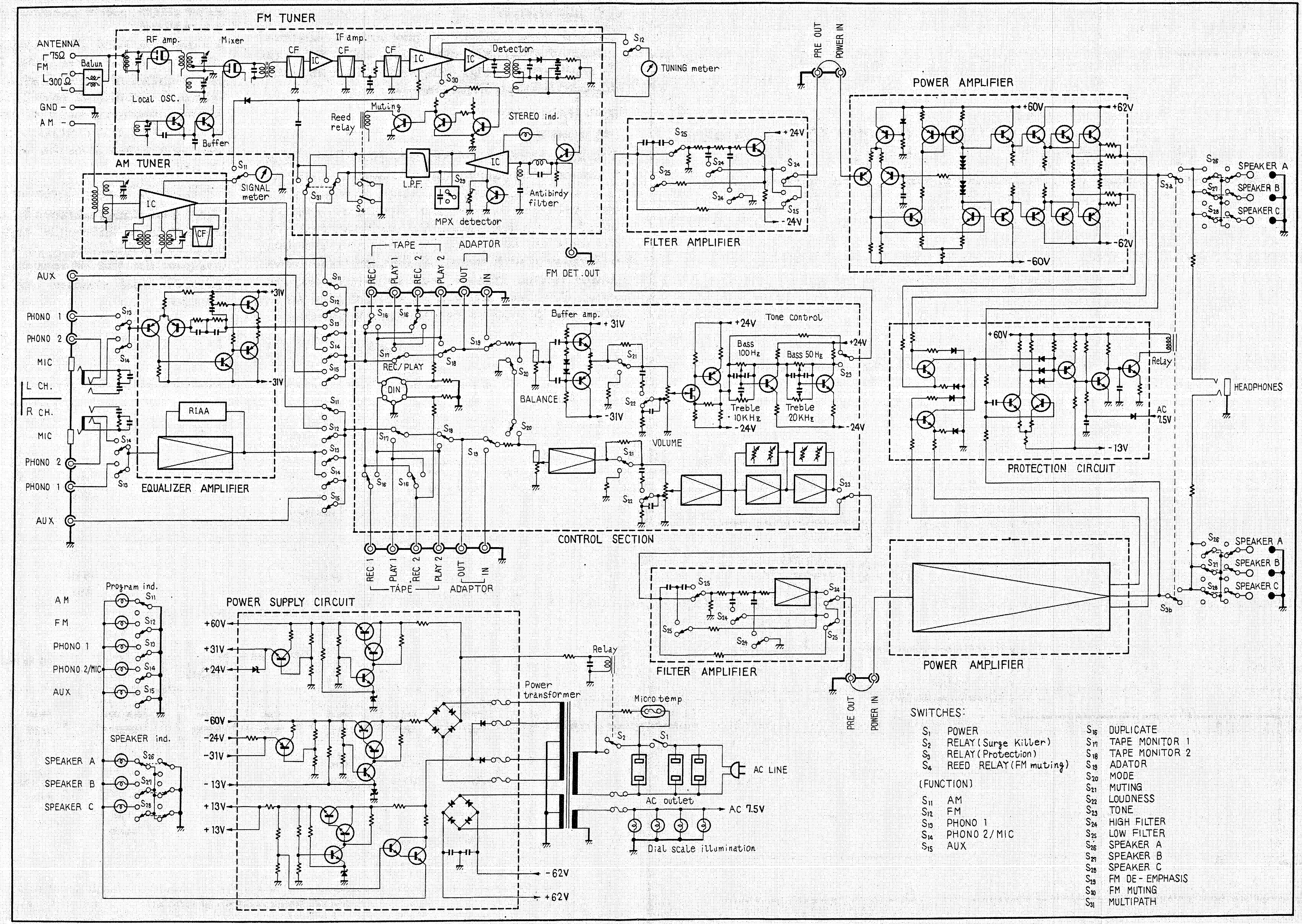
Unswitched: (200W max.) Less frequently used components, which do not require coupled power, can be plugged into either of these outlets.

Switched: (100W max.) A frequently used component (turntable, tape deck, etc.) can be plugged into this outlet. By leaving the power switch of that component in the ON position, power supply to the component will be coupled with the SX-1050 switch operation.

---

* The word "Dolby" is a trademark of Dolby Laboratories Inc.

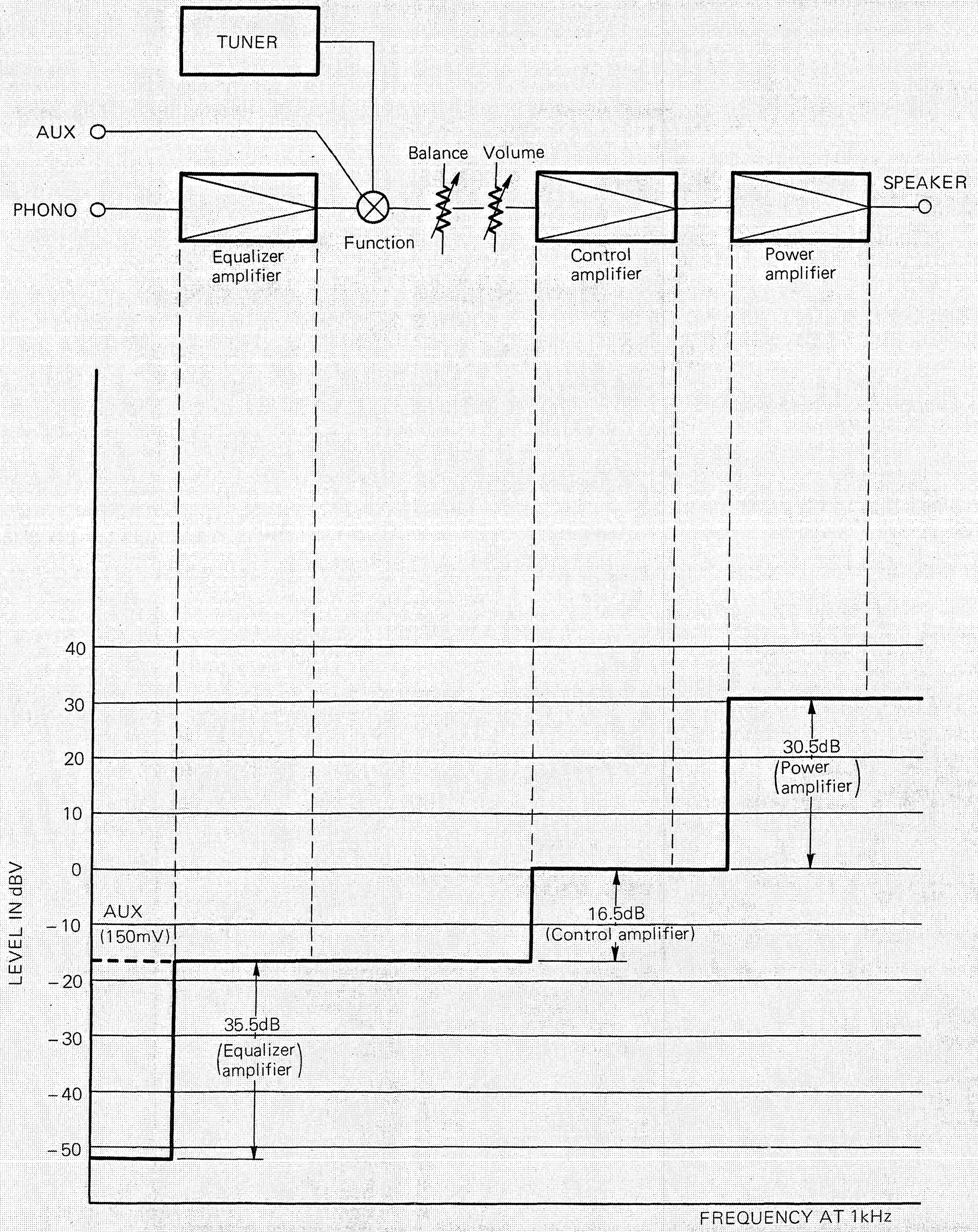
4. BLOCK DIAGRAM


FM TUNER
ANTENNA
75Ω
FM
300Ω
Balun
GND
AM
RF amp.
Mixer
Local OSC.
Buffer
IF amp.
CF
IC
Detector
Reed relay
Muting
STEREO ind.
TUNING meter
AM TUNER
SIGNAL meter
L.P.F.
MPX detector
Antibirdy filter
FM DET. OUT
TAPE
ADAPTOR
REC 1
PLAY 1
REC 2
PLAY 2
OUT
IN
AUX
PHONO 1
PHONO 2
MIC
L CH.
R CH.
RIAA
EQUALIZER AMPLIFIER
Buffer amp.
REC/PLAY
DIN
BALANCE
VOLUME
Tone control
Bass 100Hz
Bass 50Hz
Treble 10KHz
Treble 20KHz
CONTROL SECTION
PRE OUT
POWER IN
FILTER AMPLIFIER
POWER AMPLIFIER
PROTECTION CIRCUIT
Relay
AC 7.5V
HEADPHONES
SPEAKER A
SPEAKER B
SPEAKER C
Program ind.
SPEAKER ind.
POWER SUPPLY CIRCUIT
Power transformer
Micro temp
AC LINE
AC outlet
AC 7.5V
Dial scale illumination
+60V
+31V
+24V
-60V
-24V
-31V
-13V
+13V
-62V
+62V

SWITCHES:

S_1	POWER
S_2	RELAY (Surge Killer)
S_3	RELAY (Protection)
S_4	REED RELAY (FM muting)
(FUNCTION)	
S_{11}	AM
S_{12}	FM
S_{13}	PHONO 1
S_{14}	PHONO 2/MIC
S_{15}	AUX
S_{16}	DUPLICATE
S_{17}	TAPE MONITOR 1
S_{18}	TAPE MONITOR 2
S_{19}	ADATOR
S_{20}	MODE
S_{21}	MUTING
S_{22}	LOUDNESS
S_{23}	TONE
S_{24}	HIGH FILTER
S_{25}	LOW FILTER
S_{26}	SPEAKER A
S_{27}	SPEAKER B
S_{28}	SPEAKER C
S_{29}	FM DE-EMPHASIS
S_{30}	FM MUTING
S_{31}	MULTIPATH

5. LEVEL DIAGRAM



6. CIRCUIT DESCRIPTIONS

6.1 AM TUNER

The AM tuner employs a 3-gang variable capacitor and an IC (HA1138) with 1 stage RF and 2 stage IF amplification. Fig. 1 shows the HA1138 block diagram (see page 55 for circuit).

6.2 FM TUNER

FM Front End

The RF amplifier employs a dual gate MOS FET in a cascade connected circuit (combination common-gate and common-source circuit), allowing stable high gain amplification and low noise to be obtained. A variation of a Clapp oscillator is used in the local oscillator. This circuit features low drift in frequency with respect to fluctuations in power source voltage, ambient temperature changes, and aging. The clean oscillation waveform provides an advantage in terms of low spurious interference.

Waveform distortion is suppressed by inserting a buffer amplifier between the local oscillator and mixer stages. Stable operation with high inputs is also realized.

A dual gate MOS FET cascade amplifier is also employed in the mixer stage. The received signal goes to gate 1 of the FET, while the local oscillator voltage is applied to gate 2. Mutual interference between received signal and local oscillator voltage is reduced by this method, even at high inputs. A low input power from the local oscillator can also be used.

FM IF Amplifier and Detector Circuit

Three dual element ceramic filters, an IC (HA1201) containing a differential amplifier, and an IC (HA1137) containing a 3-stage limiter amplifier compose the FM IF amplifier. Fig. 2 shows the HA1137 block diagram (see circuit diagram on page 55).

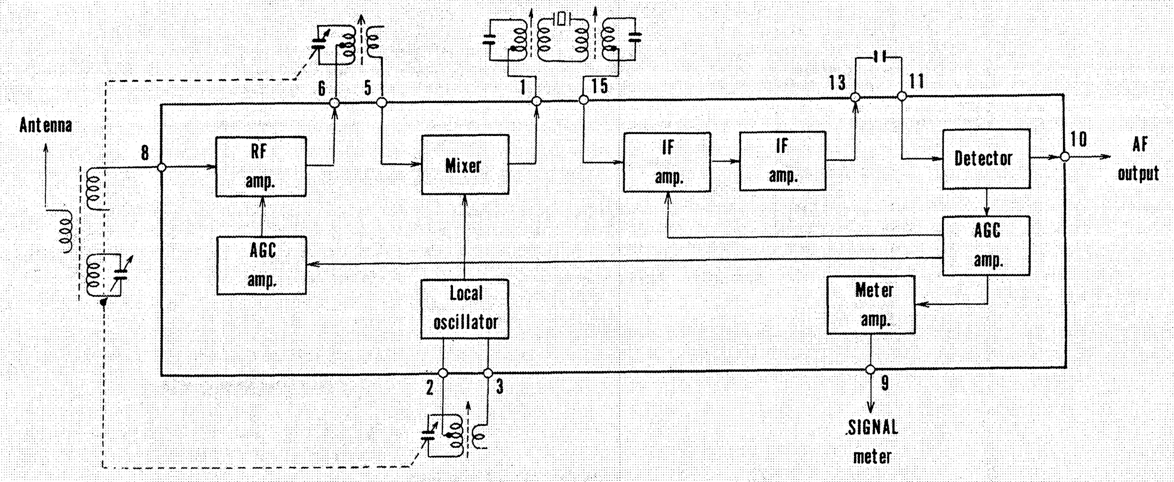

Antenna
8
RF amp.
AGC amp.
6
5
Mixer
Local oscillator
1
15
13
11
IF amp.
IF amp.
Detector
10
AF output
AGC amp.
Meter amp.
2
3
9
SIGNAL meter

Fig. 1 Block Diagram of HA1138

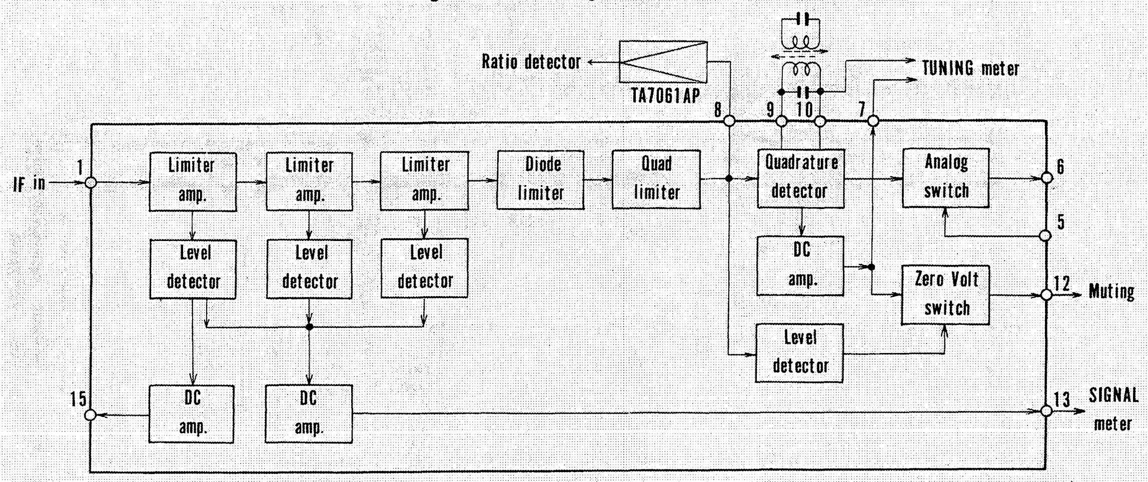

Ratio detector
TA7061AP
8
9
10
7
TUNING meter
IF in
1
Limiter amp.
Limiter amp.
Limiter amp.
Diode limiter
Quad limiter
Quadrature detector
Analog switch
6
5
Level detector
Level detector
Level detector
DC amp.
Zero Volt switch
12
Muting
Level detector
15
DC amp.
DC amp.
13
SIGNAL meter

Fig. 2 Block Diagram of HA1137

In addition to limiter amplifier, the HA1137 IC includes detector, meter drive, and muting circuits. The detector circuit in the HA1137 is not employed in this set however a separate ratio detector circuit is employed instead, resulting in improved S.N ratio.

Anti Birdy Filter

This refers to the 200kHz trap circuit. In the case when an adjacent signal is precisely 200kHz different from the desired signal in frequency, beat interference can be produced between higher harmonics of the pilot signal (19kHz) and the interfering signal, resulting in an audible birdlike sound. This filter is provided for eliminating such phenomena.

Multiplex Decoder

Demodulation is performed by switching detection. A single IC (HA1196) composes the circuit, which is divided into 3 sections. Fig. 3 shows the HA1196 block diagram (see circuit diagram on page 55).

1. **Switching signal generator**

   A PPL (phase locked loop) system is employed. 76kHz is generated by a VCO (voltage controlled oscillator: oscillator in which the frequency is varied by a control voltage) and converted into 19kHz by a frequency divider. This signal and the pilot (19kHz) of the received signal are applied to a phase comparator, which converts the phase differences of the two signals into a voltage. The voltage is then fed back to the VCO. The oscillator signal phase becomes locked to the pilot signal by this loop (PLL) and a 38kHz signal synchronised to the pilot signal is obtained and employed as the switching signal.

2. **Automatic stereo detector**

   With the PLL locked to the pilot signal, the pilot signal and a 19kHz signal of the same phase are produced. A voltage is then obtained at the phase comparator that is proportional to the pilot signal amplitude. As it increases, the lamp lights and the switch becomes on. The switching signal is applied to the demodulator.

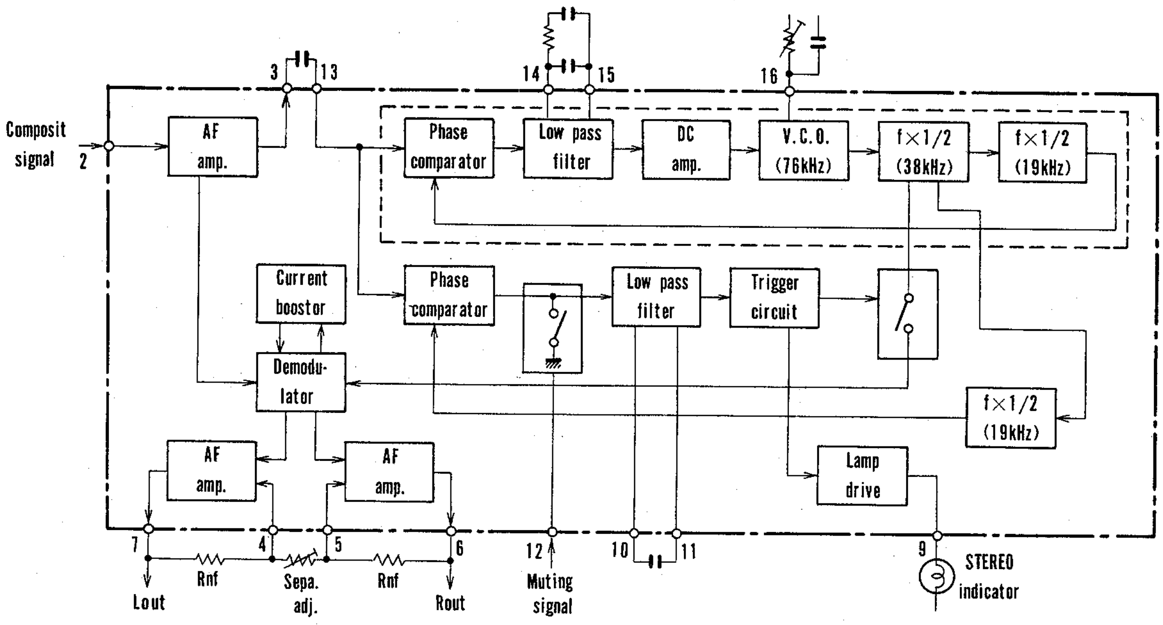

Composit signal
2
3
13
14
15
16
AF amp.
Phase comparator
Low pass filter
DC amp.
V.C.O. (76kHz)
f×1/2 (38kHz)
f×1/2 (19kHz)
Current boostor
Phase comparator
Low pass filter
Trigger circuit
Demodulator
f×1/2 (19kHz)
AF amp.
AF amp.
Lamp drive
7
4
5
6
12
10
11
9
Rnf
Sepa. adj.
Rnf
Lout
Rout
Muting signal
STEREO indicator

Fig. 3 Block Diagram of HA1196

3. Demodulator

This is a switching circuit employing two differential amplifiers (Fig. 4). Q1 and Q2 are alternately switched on and off by the switching signal. The composite signal is amplified at Q3, switched and demodulated. Q6 and Q3 are loosely coupled at their emitters by R1 — R3. Q6 is driven in reverse phase to Q3. This is switched at Q4 and Q5, and by composing with Q1 and Q2 at the collector, crosstalk becomes cancelled.

Adequate current flow is required to Q3 and Q6 to improve distortion figures at this point. However, if the base bias voltage is raised, the voltage component at the collector becomes reduced and clipping occurs (power supply voltage is limited by IC voltage endurance). For this reason, current from an external source is inserted at Q3 and Q6 collectors to become I_1 and I_2. The same current amounts are obtained as I_3 and I_4 from the emitters. Q3 and Q6 therefore operate with adequate current, and distortion at this stage becomes remarkablly improved. A feedback amplifier amplifies the demodulated output.

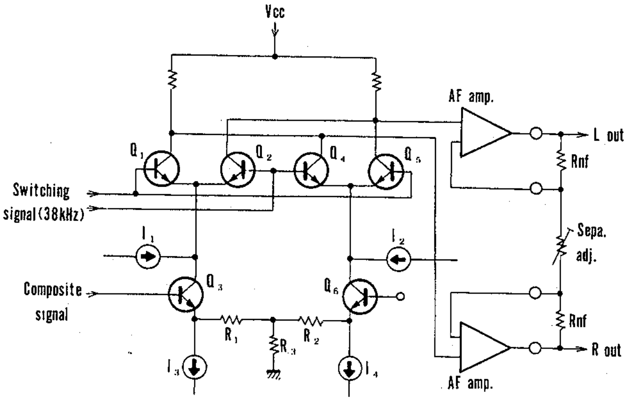


Fig. 4 Equivalent Circuit of Demodulator

FM Muting Circuit

Fig. 5 shows the FM muting circuit of the SX-1050. When there is more than approximately ±70kHz detuning or an extremely low input signal level, a DC voltage becomes generated at pin 12 of HA1137. This is taken as the detector signal for FM muting circuit operation.

If the FM MUTING switch is set to ON position, pin 12 is connected to Q1 bias through R1 and R2. When the received signal is extremely low (also includes detuning), a DC voltage (plus) is produced at pin 12 of HA1137. This voltage forward biases Q1 base and Q1 becomes switched on. Consequently, Q2 comes off and Q3 goes on. When Q3 goes on, current flows in the reed relay coil. The signal output circuit is thus grounded and muting is attained.

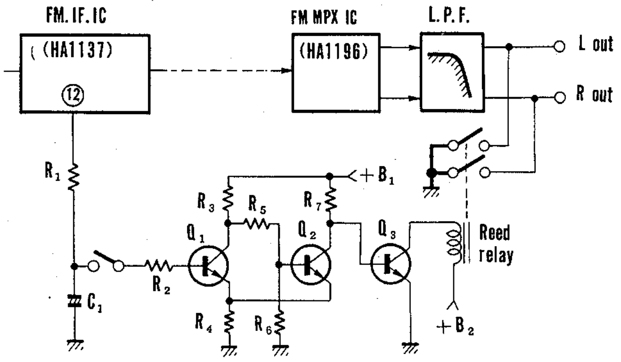


Fig. 5 Circuit Diagram of FM Muting Circuit

6.3 EQUALIZER AMPLIFIER

This is a three stage, direct-coupled NFB (negative feedback) type consisting of five transistors; employing a differentail amplifier in the first stage and a SEPP (single ended push-pull) in the final stage.

By using the differential amplifier in the first stage, the DC feedback becomes 100% thus considerably improving the stability of the direct current. This produces very low noise and very small distortion so that there can be a large AC feedback—regardless of the high-gain circuit.

In addition, the SEPP circuit at the final stage can effectively utilize the voltage of the power source, and produce a high output of small distortion, while at the same time the overload level and the dynamic margin are both increased. The equalizer amplifier circuit is shown in Fig. 6. Signals, from the PHONO input terminal, are fed to the differential amplifiers Q1, Q2.

Q1 output is voltage amplified at Q3 and Q3 drives the Q4 and Q5 SEPP circuit.

Due to the boot-strap circuit of R9, R10 and C7, inserted in the load to Q3, the AC load impedance and the voltage gain are both enlarged. The NFB is applied from the output to the base of Q2.

The entire DC feedback is applied through R13 and R14, and the level of the NFB of AC is determined by R13, R14, R15, C11, C12 and C10.

The NFB element of this AC provides the frequency selectivity and the RIAA regenerative compensation characteristic. Stable RIAA equalization is achieved by metal film resistors R13 and

R14, having an error of no more than 1%, combined with high accuracy polystyrene film capacitors C11 and C12 with a tolerance of 2%, which provide high reliability and fidelity, and are not affected by temperature variations or aging.

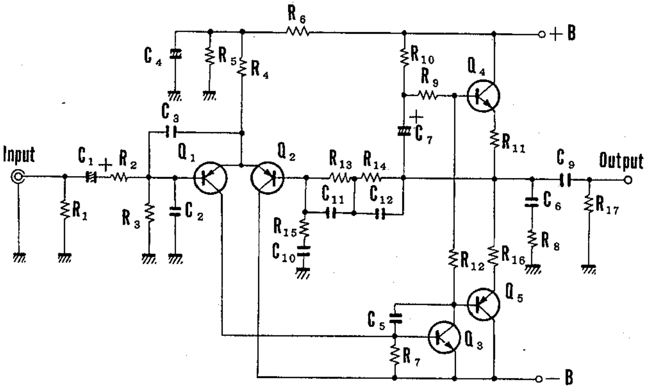

R6
+B
C4
R5
R4
R10
R9
Q4
C3
C7
R11
Input
C1
R2
Q1
Q2
R13
R14
C9
Output
C11
C12
R1
R3
C2
R15
C10
C6
R17
R8
R12
R16
Q5
C5
Q3
R7
−B

Fig. 6 Circuit Diagram of Equalizer Amplifier

6.4 INPUT BUFFER AMPLIFIER

This is a balanced power supply, pure complementary SEPP buffer amplifier. Although the circuit gain is essentially 0dB, high TAPE MONITOR and AUX jack input impedance can be obtained. The low output impedance permits a low resistance VOLUME control to be employed in the following stage, eliminating observable high frequency deterioration due to VOLUME control position. Since the power supply uses an extremely high ±30V push pull arrangement, inclusion of this circuit does not impair dynamic range. The circuit is shown in Fig. 7.

The input signal passes through C1, C2, R3, R4 and is applied to both Q1, Q2.

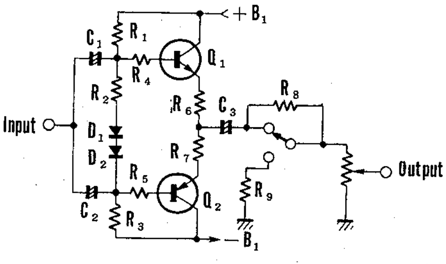

+B1
C1
R1
Q1
R4
R2
R6
C3
R8
Input
D1
D2
R7
Output
R5
R9
Q2
C2
R3
−B1

Fig. 7 Input Buffer Amplifier

6.5 TONE CONTROL CIRCUIT

The SX-1050 tone control circuit employs a twin control system consisting of NFB type. An FET and transistor are combined in a two stage direct coupled amplifier, after which two single transistor amplifiers are inserted in series and C-B feedback is applied. Since the feedback circuit possesses selectivity, tone control becomes accomplished. The basic circuit of this section is shown in Fig. 8. The description given here refer to the main tone control circuit. Sub tone control circuit is the same as main tone control description.

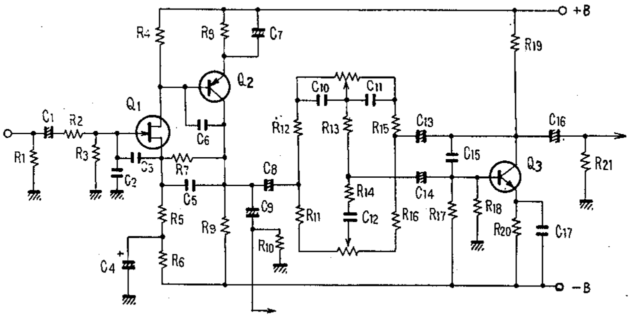

+B
R4
R8
C7
R19
Q2
C10
C11
Q1
C1
R2
C6
R12
R13
R15
C13
C16
R1
R3
C3
R7
C15
Q3
R21
C2
C8
C5
R14
C14
C9
R5
R9
R11
C12
R16
R17
R18
R20
C17
R10
C4
R6
−B

Fig. 8 Tone Control Circuit

Midrange Operation

C10 and C11 reactance is considerably smaller than VR1 at frequencies above midrange, effectively shorting VR1. At frequencies below midrange C12 reactance becomes large and in effect, open. Consequently, the circuit becomes as shown in Fig. 9 with respect to the midrange. In this figure, the circuit constant is not varied at any position of VR1 and VR2 sliders. The NFB amount is therefore fixed and the circuit gain is also fixed without regard to VR1 and VR2 slider positions.

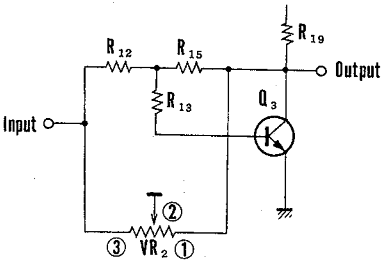

R19
R12
R15
Output
R13
Q3
Input
②
③
VR2
①

Fig. 9 Equivalent Circuit of Midrange

Low Frequency Operation

The low frequency control circuit is shown in Fig. 10-a, and the equivalent circuit, when boosting low frequency, is shown in Fig. 10-b.

As the parallel impedance of VR1 and C11, in Fig. 10-b, is high at low frequency, the volume of the NFB decreases and the gain in the low frequency range increases.

The equivalent circuit, when cutting out low frequencies, is shown in Fig. 10-c. In this case, the input signal is applied to Q3, through the parallel impedance of VR1 and C10, which is high in the low frequency range and suppresses the lower frequency signals.

The circuit gain at low frequencies can therefore be varied by VR1.

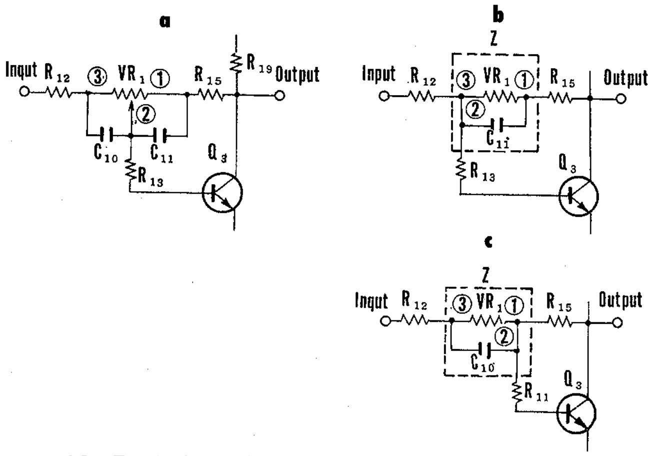

a
Inqut R12 ③ VR1 ① R15 R19 Output
②
C10 C11 Q3
R13
b
Z
Input R12 ③ VR1 ① R15 Output
②
C11
R13
Q3
c
Z
Inqut R12 ③ VR1 ① R15 Output
②
C10
Q3
R11

Fig. 10 Equivalent Circuit High Frequency Operation of Bass Boost and Cut

High Frequency Operation

The high frequency control circuit is shown in Fig. 11-a, and the equivalent circuit, when boosting high frequencies, is shown in Fig. 11-b.

In this circuit, the input signal is applied to Q3 through the parallel impedance circuit. This impedance is low in the high frequency range and produces a signal with an enhanced high range.

Fig. 11-c shows the equivalent circuit when cutting out high frequencies. As the impedance of R13, R15 and C12 of the circuit becomes low, the level of the NFB increases and the gain of the circuit decreases.

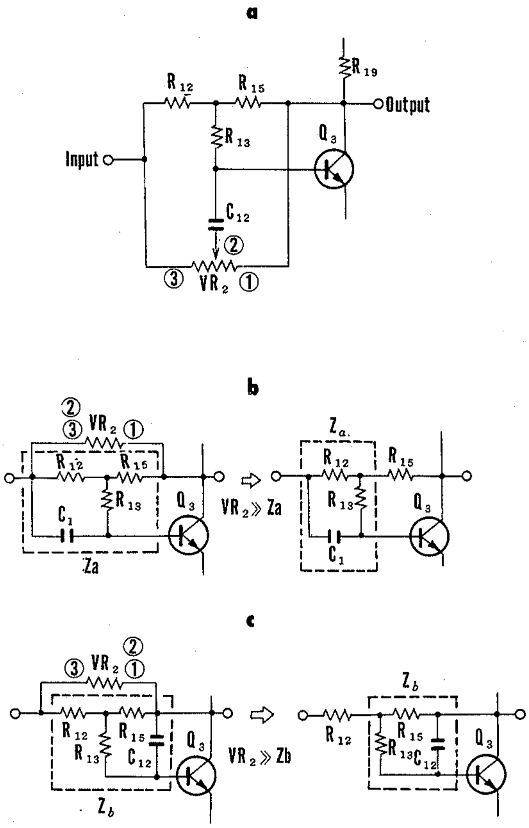

a
R12 R15 R19
Output
Input
R13
Q3
C12
②
③ VR2 ①
b
②
③ VR2 ①
R12 R15
R13 Q3
C1
Za
VR2≫Za
Za
R12 R15
R13 Q3
C1
c
②
③ VR2 ①
R12 R15
R13 C12 Q3
Zb
VR2≫Zb
Zb
R12 R15
R13 C12 Q3

Fig. 11 Equivalent Circuit of Trouble Boost and Cut

6.6 FILTER AMPLIFIER

The circuit shown in Fig. 12 has a steep characteristic of 12dB/oct, and is effective in removing noise. The low cutout filter can be switched to the two positions of 30Hz and OFF. The high cutout filter can be switched to the two positions of OFF and 8kHz.

When both LOW CUT· FILTER and HIGH CUT FILTER switches are positioned at OFF, the input signal is bypassed filter circuit and fed to next stage.

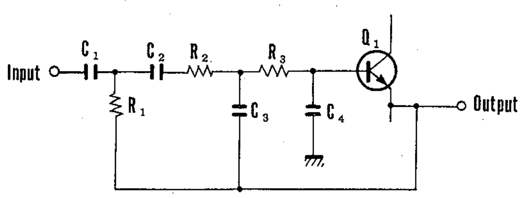

Input
C1
C2
R2
R3
Q1
R1
C3
C4
Output

Fig. 12 Circuit Diagram of Filter Amplifier

6.7 POWER AMPLIFIER

The power amplifier of the SX-1050 is a direct coupled, pure complementary parallel push pull circuit, which uses a differential amplifier with constant current circuit, and current mirror circuit, consisting of 15 transistors. The circuit diagram is shown in Fig. 13.

Q1 and Q2 form the differential amplifier. The input signal is applide to Q1 and NFB from the output stage applied to Q2 base. Q1 and Q2 outputs respectively drive Q4 and Q5 in reverse phase. The Q4 output is applied to the current mirror circuit formed by Q6 and Q7. Q5 and Q7 outputs thus become signals of the in phase and perform a pre-driver function.

Fig. 14 shows the equivalent circuit of the current mirror.

Since Q6 in the figure is shorted between base and collector, it becomes equivalent to a diode, and is thus indicated by a diode symbol. The current mirror circuit operates so that current flow (I_1) at R17 & Q6 becomes equivalent to that at R21 & Q7. In other words, point A potential is determined by R17 & Q6 current (I_1). Since this potential is also Q7 base potential, it controls the current flow (I_2) at R21 & Q7. Currents I_1 and I_2 become equal since the value of resistors R17 and R21 are the same, as the characteristics of transistors Q6 and Q7 are.

Q8—Q11 in the following driver stage drive the power transistors by direct coupling. The final stage is a high output design with four power transistors for coupled in parallel. This parallel coupling permits comparatively large current to be employed through each transistor, plus selection of an operating point with good linearity and high gain amplification.

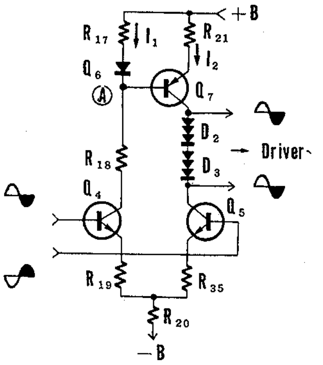

+B
R17
I1
R21
I2
Q6
Ⓐ
Q7
D2
D3
Driver
R18
Q4
Q5
R19
R35
R20
−B

Fig. 14 Current Mirror Circuit

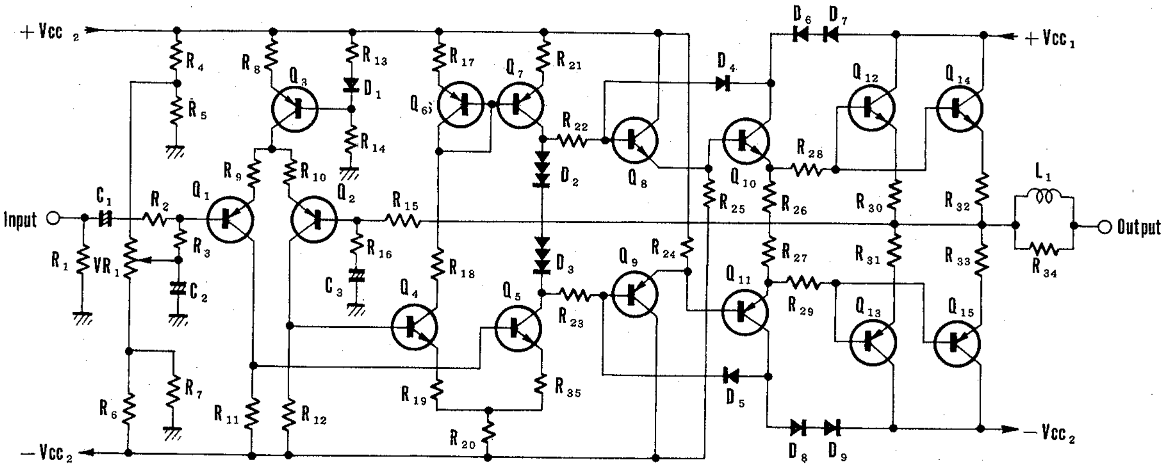

+Vcc2
R4
R5
R8
Q3
R13
D1
R14
R17
Q6
Q7
R21
R22
D2
Q8
D6
D7
D4
+Vcc1
Q12
Q14
Q10
R28
R25
R26
R30
R32
L1
Input
C1
R2
Q1
R9
R10
Q2
R15
Output
R1
VR1
R3
C2
R16
C3
R18
D3
Q9
R24
R27
R31
R33
R34
Q4
Q5
R23
Q11
R29
Q13
Q15
D5
R6
R7
R11
R12
R19
R35
R20
D8
D9
−Vcc2

Fig. 13 Circuit Diagram of Power Amplifier

6.8 PROTECTION CIRCUIT

This protection circuit functions to protect the speakers and the power amplifiers from damage due to short-circuit of the load, etc., and performs a muting operation to cut noise and distortion which occur when switching the power on and off. The circuit is shown in Fig. 15, and consists of a bridge type over-current and overload detector, a differential amplifier DC voltage detector, and a power switch ON/OFF detector section.

Relay Driving Circuit

Q4—Q6, in Fig. 15, comprise the relay driving circuit.

In the normal condition reverse bias is applied to the base of Q4, and Q4 is in a off state. When one of the above mentioned detection circuits goes on, current flows through R11, the base potential falls and Q4 is turned on. Consequently Q5 comes on and Q6 goes off. When Q6 goes off, the current of the relay circuit is cut, to release the switch of the output circuit.

When the power switch is turned on, a delay operation occurs in this circuit. R17 and C3, in the base circuit of Q6, are the time constant elements which determine the delay time. When the power switch is turned on, C3 charges to a potential of +60 volts through R17 and R18, and Q6 is kept in the off state during this time. When the power source is switched off, the muting operation of Q5 prevents shock noise. In the normal condition, the potentials of +60 volts and −5.1 volts are applied to Q5 through R14 and R15. The resultant potential at the base of Q5 is −1 volt in the cutout condition. When the power supply is turned off, of −5.1 volts disappears immediately due to the small time constant of the power circuit. Thus a positive base potential remains, switching Q5 on, which in turn switches off Q6 and hence the relay.

Detection of DC Voltage

This is a differential amplifier consisting of Q2 and Q3, as shown in Fig. 16. The bases of Q2 and Q3 are connected to the center points of the right and the left power amplifiers. When the DC balance of the power stage is lost for some reason, a potential difference is produced in the input signal to the differential amplifier, and the collector currents of Q2 and Q3 are put out of balance. Thus, the relay driving circuit functions, and the relay switch is turned off.

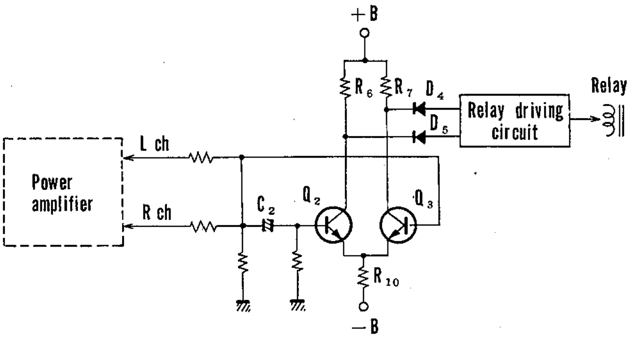

+B
R6
R7
D4
D5
Relay driving circuit
Relay
L ch
Power amplifier
R ch
C2
Q2
Q3
R10
−B

Fig. 16 DC Voltage Detection Circuit

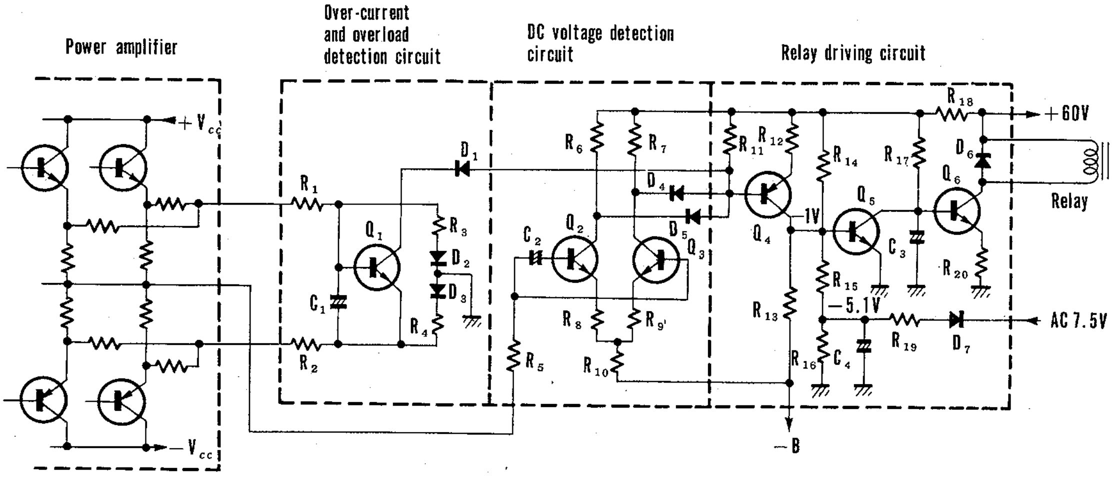

Power amplifier
Over-current and overload detection circuit
DC voltage detection circuit
Relay driving circuit
+Vcc
−Vcc
R1
R2
Q1
C1
R3
R4
D1
D2
D3
R6
R7
D4
D5
C2
Q2
Q3
R8
R9'
R5
R10
R11
R12
Q4
−1V
R13
R14
Q5
C3
R15
−5.1V
R16
C4
R17
R18
D6
Q6
R20
R19
D7
+60V
Relay
AC 7.5V
−B

Fig. 15 Protection Circuit

Over-current and Overload Detection

The equivalent circuit of this detector section is shown in Fig. 17, and Fig. 18-a shows the equivalent circuit at the time of a positive half cycle. When this equivalent circuit is overloaded, the balance of the bridge, formed by RE1, R1, R3 and RL, is disturbed, and a potential is produced between b and a in such a direction that Q1 is turned on. When Q1 is turned on, the collector current increases, the relay driving circuit functions and the relay switch of the output circuit is turned off.

After the cause of the overload is removed, the bias of Q1 is reduced and the relay switch turns on to automatically restore normal operation, Fig. 18-b shows the equivalent circuit at the time of a negative half cycle. In this circuit, a potential is produced between b and e as above, and Q1 is turned on.

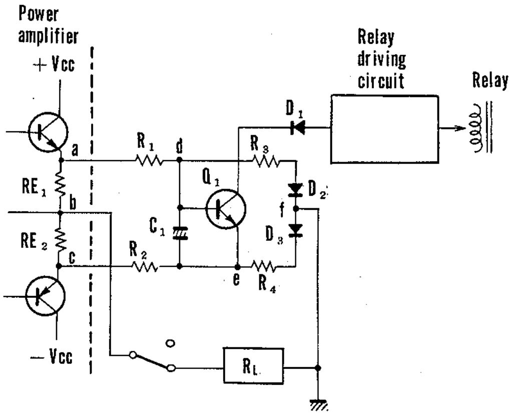


Fig. 17 Over-current and Overload Detection Circuit

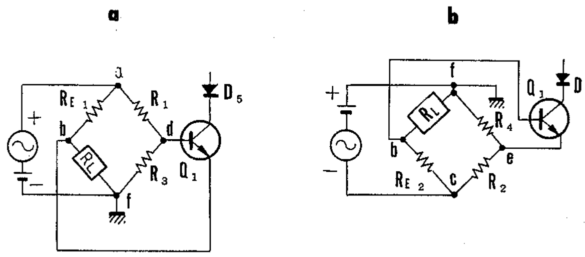


Fig. 18 Equivalent Circuit of Fig. 17

6.9 SURGE CURRENT SUPPRESSOR CIRCUIT

A toroidal core power transformer is employed in the SX-1050, which possesses compactness and a large handling capacity, also exhibits extremely low internal resistance. In combination with the two 22,000μF electrolytic capacitors forming the power supply, surge current accompanying power switch operation can reach a maximum of 130 ~ 150A. The power supply can therefore be damaged unless protective measures are taken.

The main sources of surge current generation are power transformer excitation current and power supply electrolytic capacitor charging current.

The surge suppressor circuit is employed in the primary power transformer circuit. This circuit is shown in Fig. 19.

Power transformer excitation current is handled by the relay surge suppressor circuit at the primary side. When the power switch (S1) is turned ON, the relay (S2) drive current flows through R2 and charges C3, therefore it does not flow through the S2 drive coil immediately, and S2 remains OFF. The transformer excitation current flows through temperature fuse and R1 during this interval. After C3 is completely charged, drive current flows in the S2 drive coil switching it ON, and temperature fuse and R1 is shorted.

The delay time is determined by R2 and C3. By employing this circuit, surge current is limited to approximately 60A.

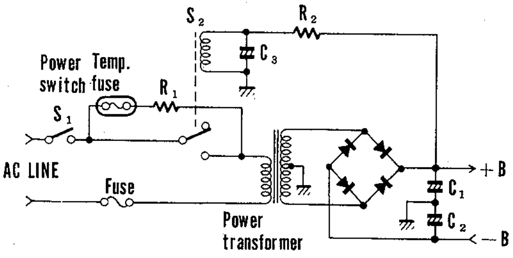


Fig. 19 Surge Current Suppressor Circuit

7. DISASSEMBLY

Top Cover (Fig. 20)

Remove the 2 screws on each side of the top cover.

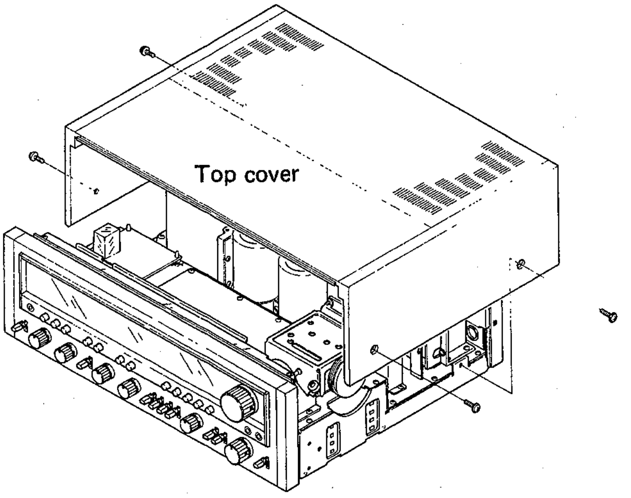


Fig. 20

Bottom Plate (Fig. 21)

Remove the 16 screws to detach the bottom plate.

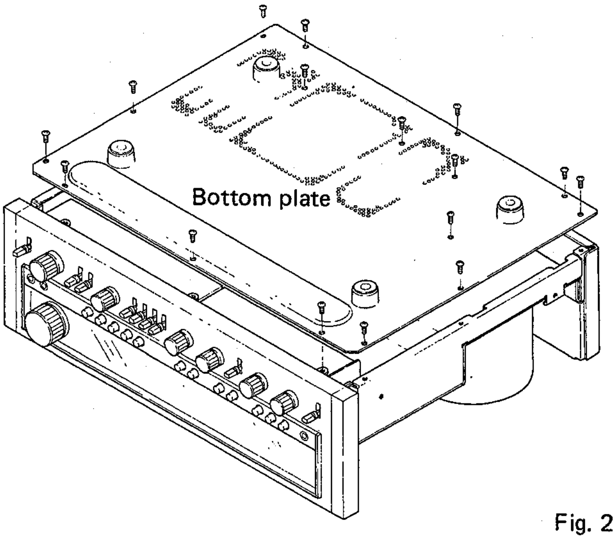

Bottom plate

Fig. 21

Front Panel Assembly (Fig. 22)

1. Remove the top cover.
2. Remove the 2 screws (A) from the top edge of the front panel.
3. Loosen the setscrews of TUNING knob and VOLUME knob with a hexagonal wrench.
4. Remove all control knobs by pulling.
5. Remove the 3 nuts (B).

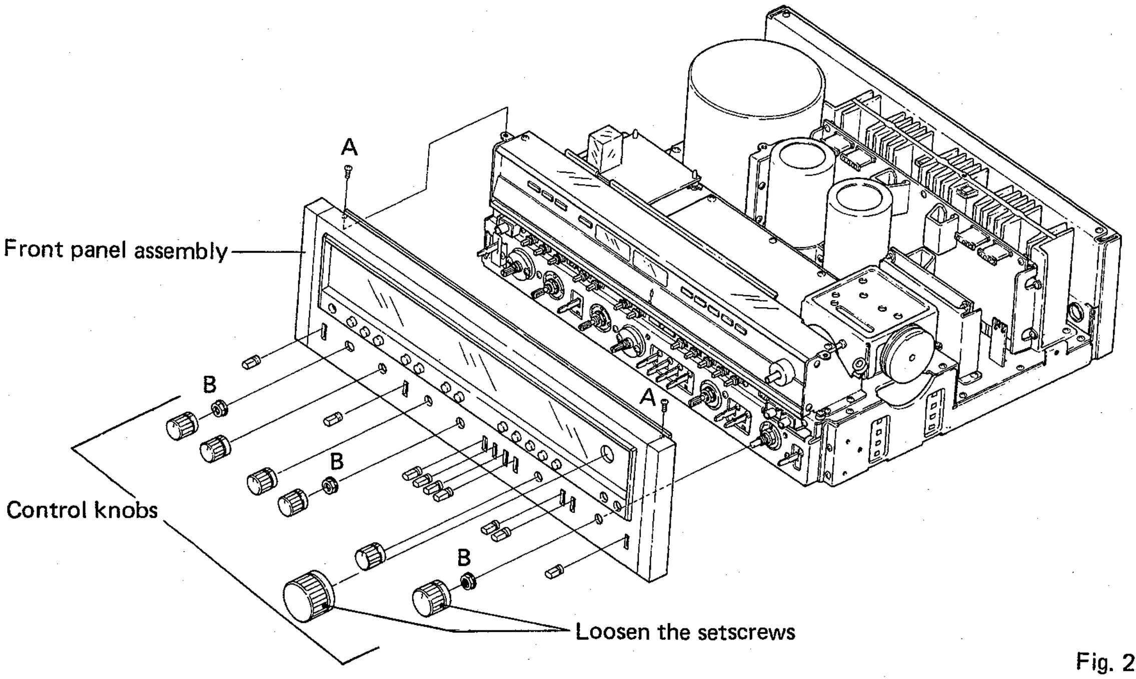

A
Front panel assembly
B
A
B
Control knobs
B
Loosen the setscrews

Fig. 22

Tone Amplifier Assembly (Fig. 23)
Remove the 3 screws (C).

Flat Amplifier Assembly (Fig. 23)
Remove the 3 screws (D).

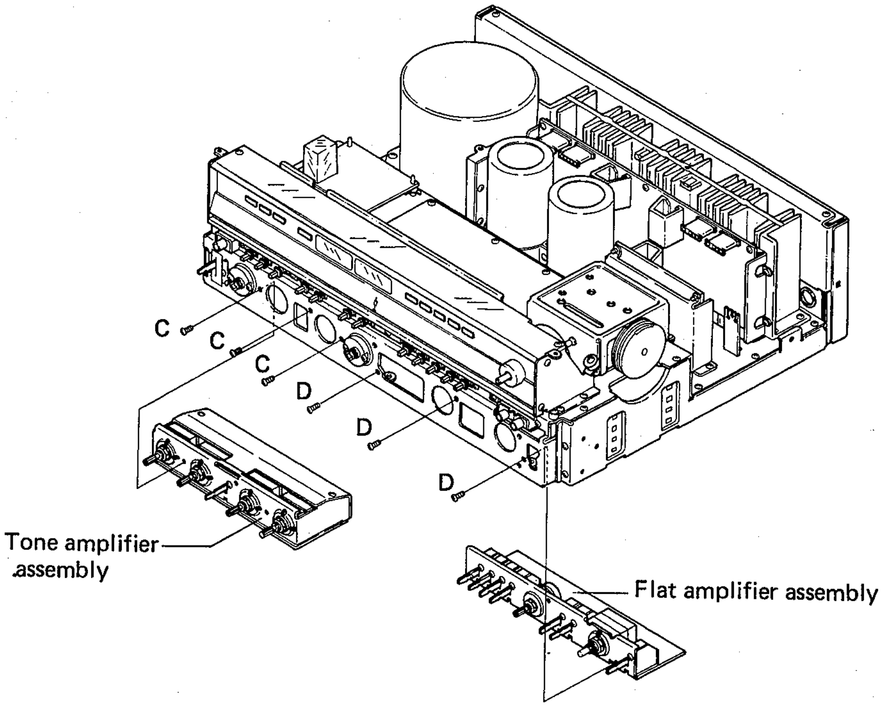

C
C
C
D
D
D
Tone amplifier assembly
Flat amplifier assembly

Fig. 23

Speaker Switch Assembly (Fig. 24)
Remove the 4 screws (E).

Filter Amplifier Assembly (Fig. 24)
Remove the 2 screws (F).

Function Switch Assembly (Fig. 24)
Remove the 2 screws (G).

Microphone Jack Assembly (Fig. 24)
Remove the 2 screws (H).

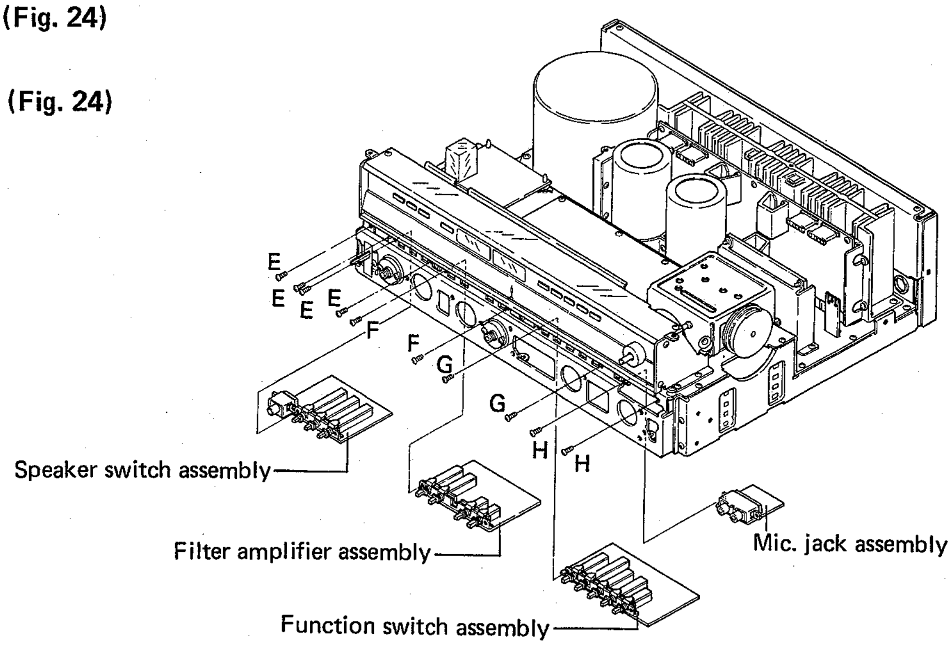

E
E
E
E
F
F
G
G
H
H
Speaker switch assembly
Filter amplifier assembly
Function switch assembly
Mic. jack assembly

Fig. 24

Dial Panel (Fig. 25)

1. Remove the top cover and front panel.
2. Unscrew the 2 screws (I) which mount the acrylic board. Remove the acrylic board.
3. Unscrew the 3 screws (J) which mount the lamp board assembly on the chassis. Incline the lamp board assembly to the rear.
4. Unscrew the 2 screws (K) mounting the double meter fixing bracket on the chassis.
5. Unscrew the 4 screws (L) mounting the SPEAKER indicator and program indicator fixing brackets on the dial panel.
6. Remove the 3 screws (M) to detach the blind sash.
7. Remove the shaft cover, nut and washer from the tuning shaft assembly. Remove the dial pointer from the dial panel. Take care not to slip off the dial cord when removing the dial pointer and tuning shaft. If the dial cord is slipped off, string it according to "Dial cord stringing" on page 35.
8. Remove the 4 screws (N) to detach the dial panel.

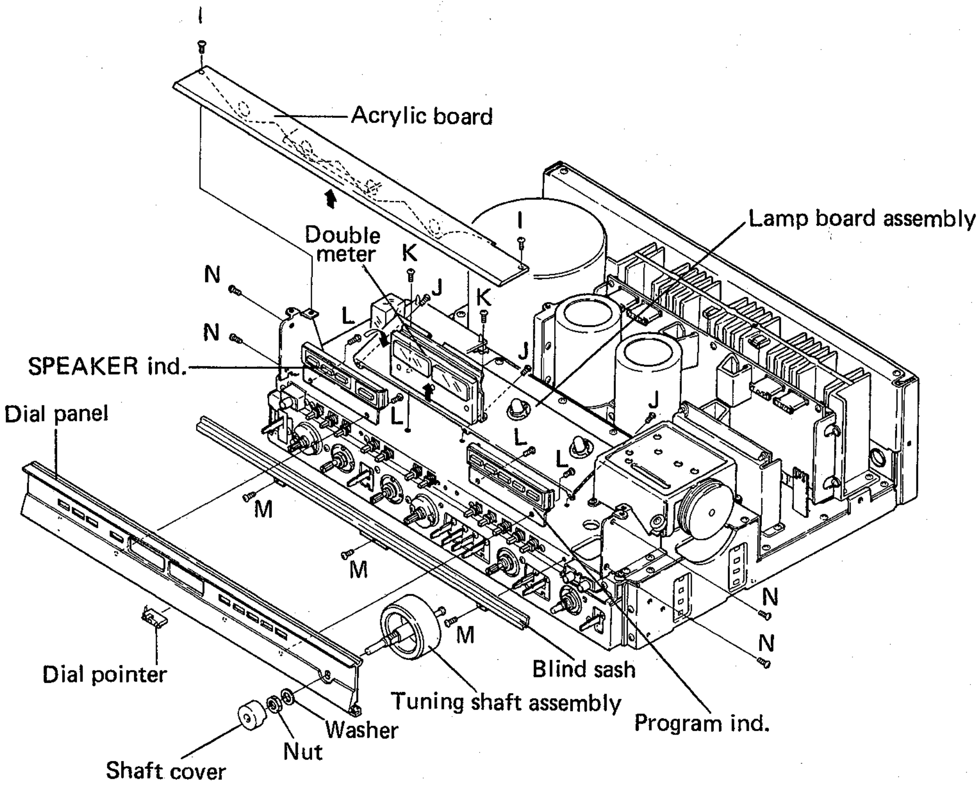
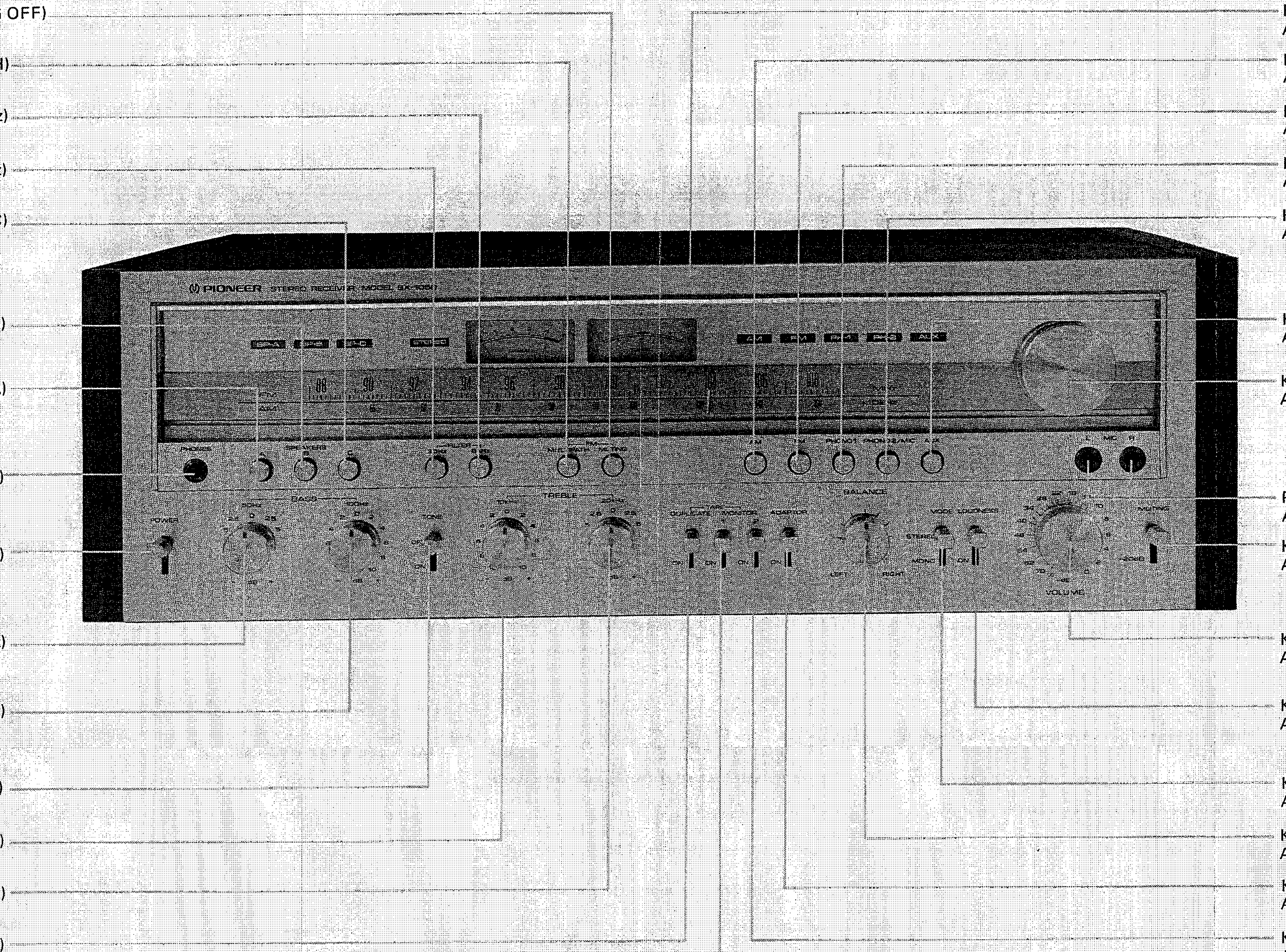

I
Acrylic board
I
Lamp board assembly
Double meter
K
J
K
N
N
L
J
SPEAKER ind.
Dial panel
L
J
L
L
M
M
M
N
N
Dial pointer
Blind sash
Tuning shaft assembly
Program ind.
Washer
Nut
Shaft cover

Fig. 25

8. PARTS LOCATIONS

8.1 FRONT VIEW 1



Knob (FM MUTING OFF)
AAD-114

Knob (FM MULTIPATH)
AAD-114

Knob (FILTER 8kHz)
AAD-114

Knob (FILTER 30Hz)
AAD-114

Knob (SPEAKERS C)
AAD-114

Knob (SPEAKERS B)
AAD-114

Knob (SPEAKERS A)
AAD-114

Phone jack (PHONES)
AKN-010

Knob (POWER)
AAD-113

Knob (BASS 50Hz)
AAB-100

Knob (BASS 100Hz)
AAB-100

Knob (TONE)
AAD-113

Knob (TREBLE 10kHz)
AAB-100

Knob (TREBLE 20kHz)
AAB-100

Knob (TAPE DUPLICATE)
AAD-113

Knob (TAPE MONITOR 1)
AAD-113

Front panel assembly
ANB-388

Knob (AM)
AAD-114

Knob (FM)
AAD-114

Knob (PHONO 1)
AAD-114

Knob (PHONO 2/MIC)
AAD-114

Knob (AUX)
AAD-114

Knob (TUNING)
AAA-034

Phone jack (MIC)
AKN-013

Knob (MUTING)
AAD-113

Knob (VOLUME)
AAB-104

Knob (LOUDNESS)
AAD-113

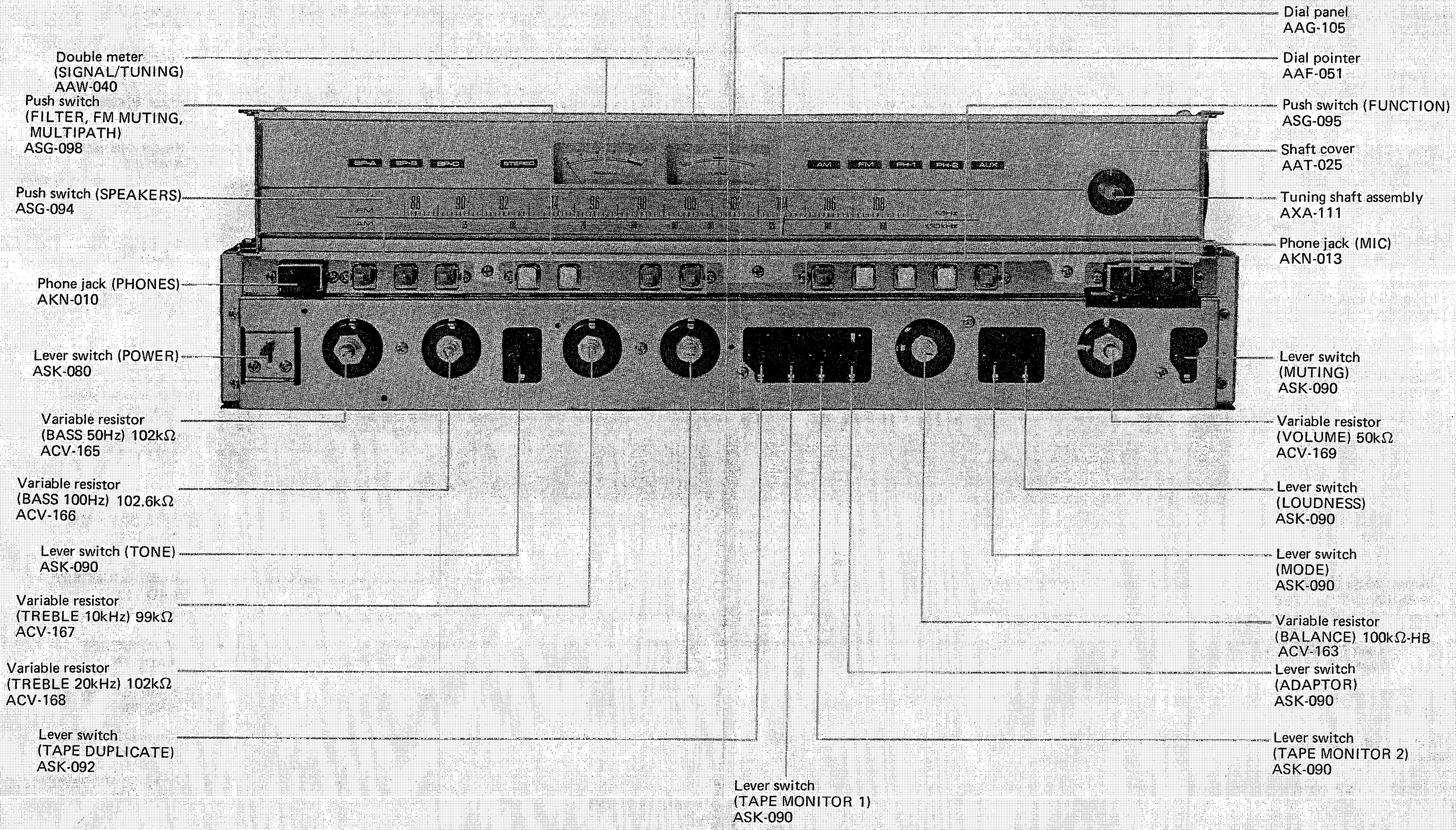
Knob (MODE)
AAD-113

Knob (BALANCE)
AAB-100

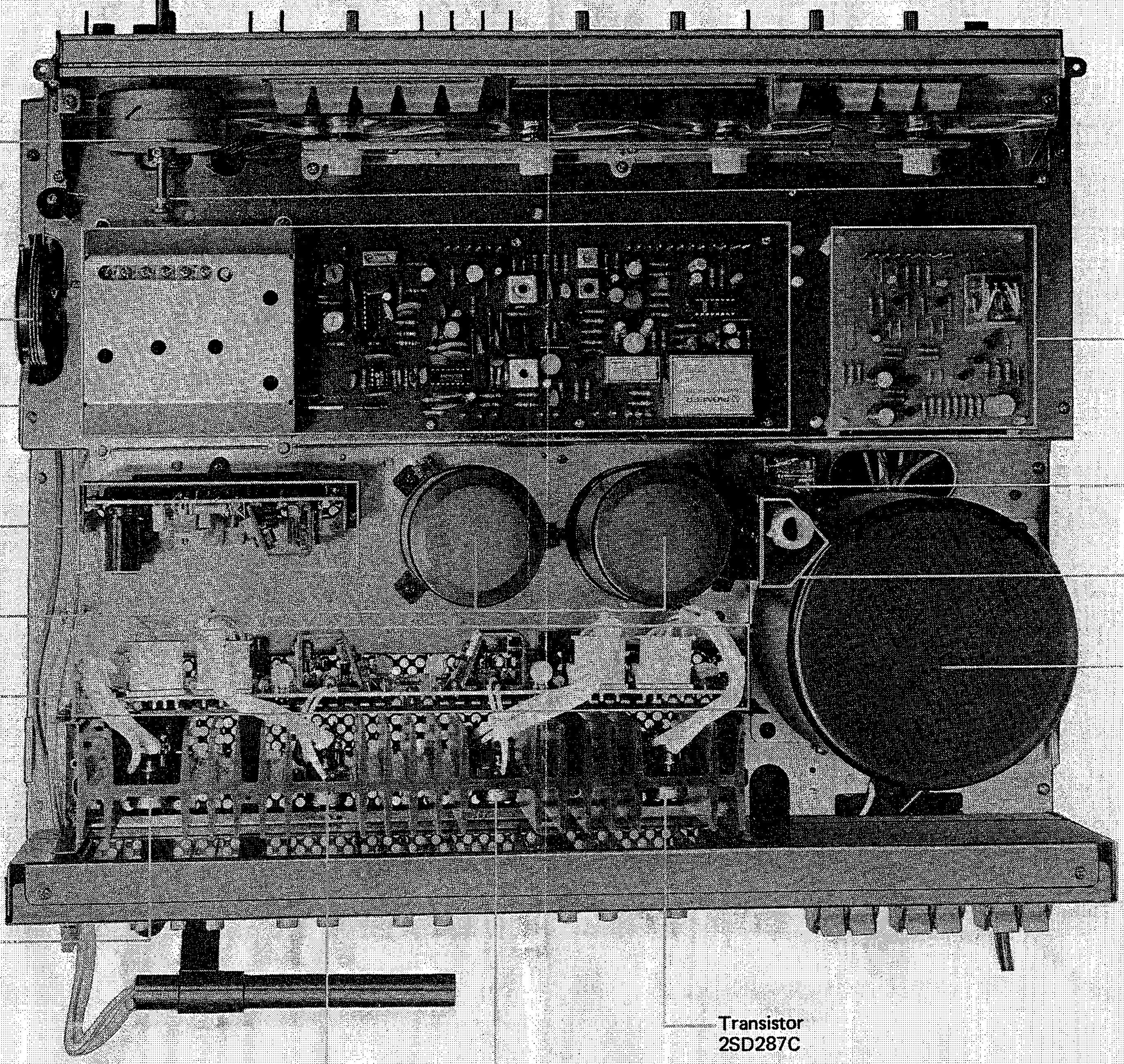
Knob (ADAPTOR)
AAD-113

Knob (TAPE MONITOR 2)
AAD-113

8.2 FRONT VIEW 2 (with Panel Removed)


Double meter (SIGNAL/TUNING) AAW-040
Push switch (FILTER, FM MUTING, MULTIPATH) ASG-098
Push switch (SPEAKERS) ASG-094
Phone jack (PHONES) AKN-010
Lever switch (POWER) ASK-080
Variable resistor (BASS 50Hz) 102kΩ ACV-165
Variable resistor (BASS 100Hz) 102.6kΩ ACV-166
Lever switch (TONE) ASK-090
Variable resistor (TREBLE 10kHz) 99kΩ ACV-167
Variable resistor (TREBLE 20kHz) 102kΩ ACV-168
Lever switch (TAPE DUPLICATE) ASK-092
Lever switch (TAPE MONITOR 1) ASK-090
Dial panel AAG-105
Dial pointer AAF-051
Push switch (FUNCTION) ASG-095
Shaft cover AAT-025
Tuning shaft assembly AXA-111
Phone jack (MIC) AKN-013
Lever switch (MUTING) ASK-090
Variable resistor (VOLUME) 50kΩ ACV-169
Lever switch (LOUDNESS) ASK-090
Lever switch (MODE) ASK-090
Variable resistor (BALANCE) 100kΩ-HB ACV-163
Lever switch (ADAPTOR) ASK-090
Lever switch (TAPE MONITOR 2) ASK-090

8.3 TOP VIEW



Tuning shaft assembly
AXA-111

Tuning drum assembly
AXA-113

Tuner assembly
AWE-067

Power supply assembly-A
AWR-103

Electrolytic capacitor
(22,000μF, 80V)
ACH-056

Power amplifier assembly
AWH-047

Transistor
2SD287C

Transistor
2SB539C

Transistor
2SB539C

Transistor
2SD287C

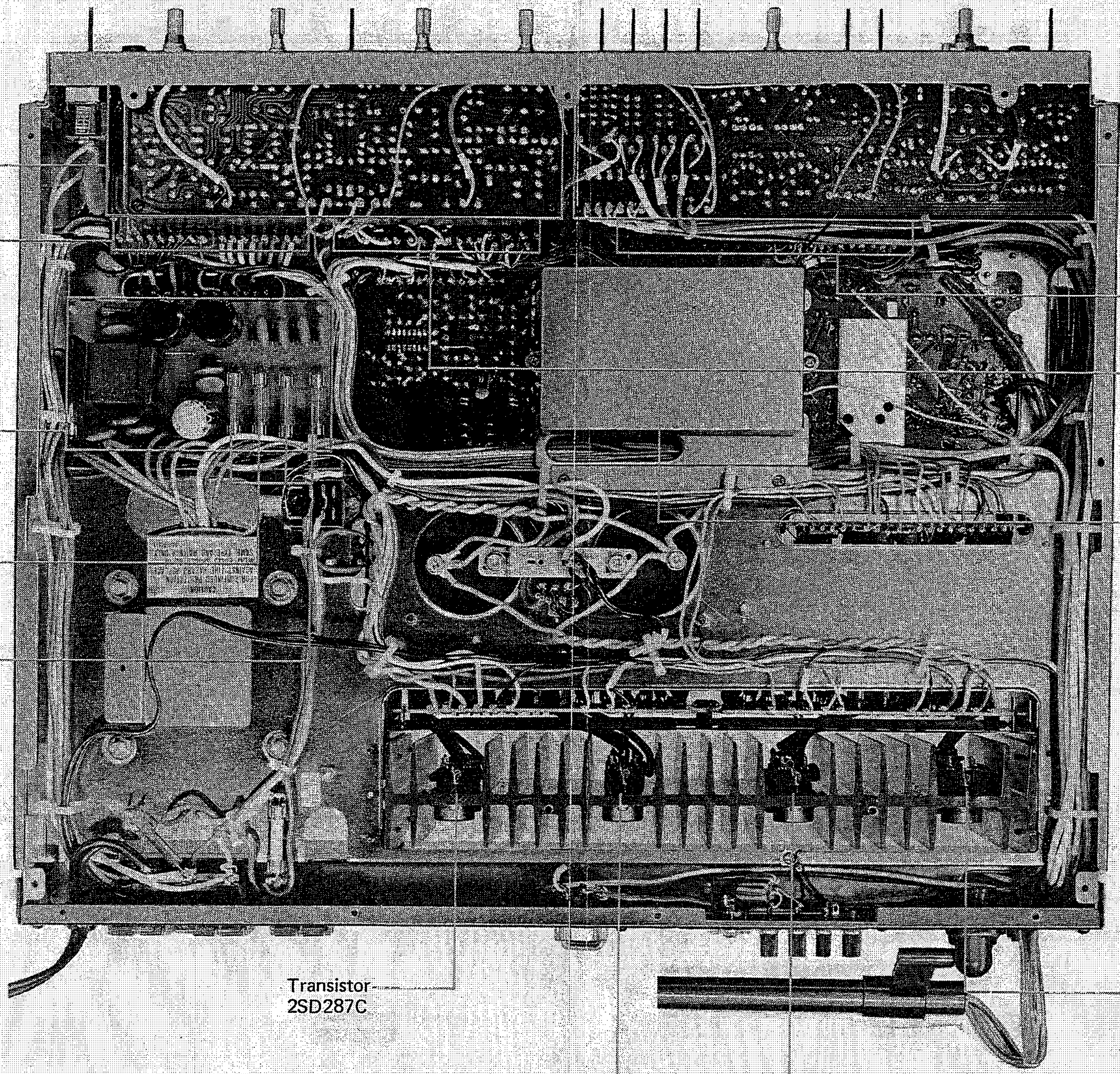
Protection Assembly
AWM-090

Relay
ASR-015

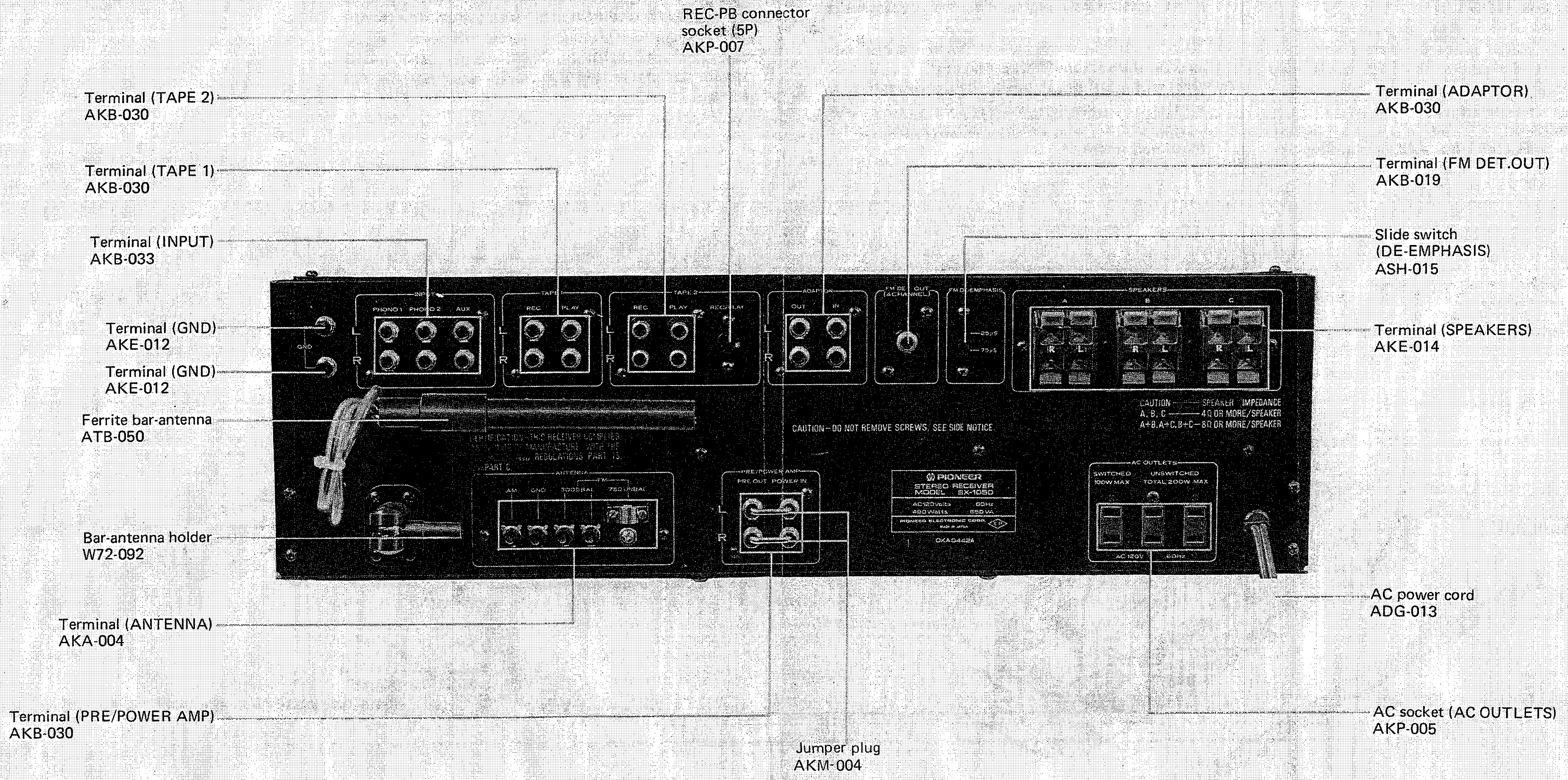
Surge current suppressor assembly
AWX-098

Power transformer
ATT-266

8.4 BOTTOM VIEW


Control amplifier assembly
AWG-041
Speaker switch assembly
AWS-095
Power supply assembly-B
AWR-104
Fuse 1A (FU1 ~ FU4)
AEK-106
Relay
ASR-015
Flat amplifier assembly
AWG-040
Function switch assembly
AWS-094
Filter amplifier assembly
AWM-089
Equalizer amplifier assembly
AWF-020
Transistor
2SD287C
Transistor
2SD287C
Transistor
2SB539C
Transistor
2SB539C

8.5 REAR VIEW


REC-PB connector socket (5P) AKP-007
Terminal (TAPE 2) AKB-030
Terminal (TAPE 1) AKB-030
Terminal (INPUT) AKB-033
Terminal (GND) AKE-012
Terminal (GND) AKE-012
Ferrite bar-antenna ATB-050
Bar-antenna holder W72-092
Terminal (ANTENNA) AKA-004
Terminal (PRE/POWER AMP) AKB-030
Jumper plug AKM-004
Terminal (ADAPTOR) AKB-030
Terminal (FM DET.OUT) AKB-019
Slide switch (DE-EMPHASIS) ASH-015
Terminal (SPEAKERS) AKE-014
AC power cord ADG-013
AC socket (AC OUTLETS) AKP-005
CAUTION—DO NOT REMOVE SCREWS. SEE SIDE NOTICE
PIONEER STEREO RECEIVER MODEL SX-1050

9. DIAL CORD STRINGING

1. Remove the top cover and the front panel. el.
2. Remove the three screws to detach the blind sash (Fig. 26).
3. Turn tuning drum fully clockwise (as viewed from X direction in (Fig. 27).
4. Tie one end of cord to stud on inner section of tuning drum (more easily performed by loosening setscrew and temporarily removing tuning drum from shaft).
5. Route cord through tuning drum cutout, make a half turn around the drum, then route in sequence to pulley A—dial pointer—pulley B—pulley C.
6. Wind cord 3 turns clockwise (as viewed from rear panel) around tuning shaft, then route to pulley D.
7. Wind cord two turns around tuning drum and tie to spring hook so that tension is applied to the cord.
8. Turn TUNING knob and confirm normal cord motion, then trim off excess cord.
9. With tuning drum at step 1 setting, restrain cord from moving and slip dial pointer on cord. Align it with the starting point (extreme left end of frequency scale).

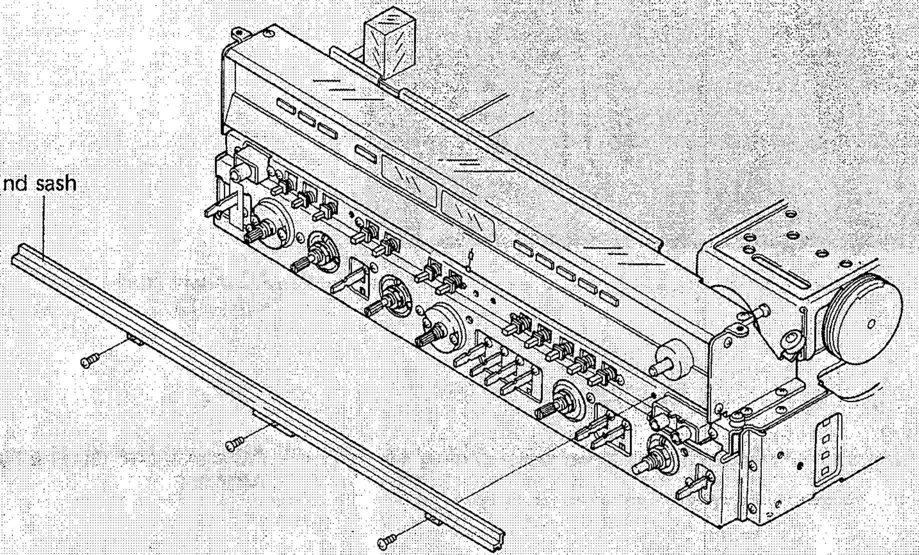


Fig. 26

Dial Pointer Installation Caution

Metal portion of dial pointer is plated approximately 0.2μ. If this section is touched directly by hand or fingerprints and other impurities adhere, it is difficult to remove dirt from aventurine finish. As this is not desirable in terms of both appearance and anticorrosion, take extreme care not to touch the metal portion when handling the dial pointer.

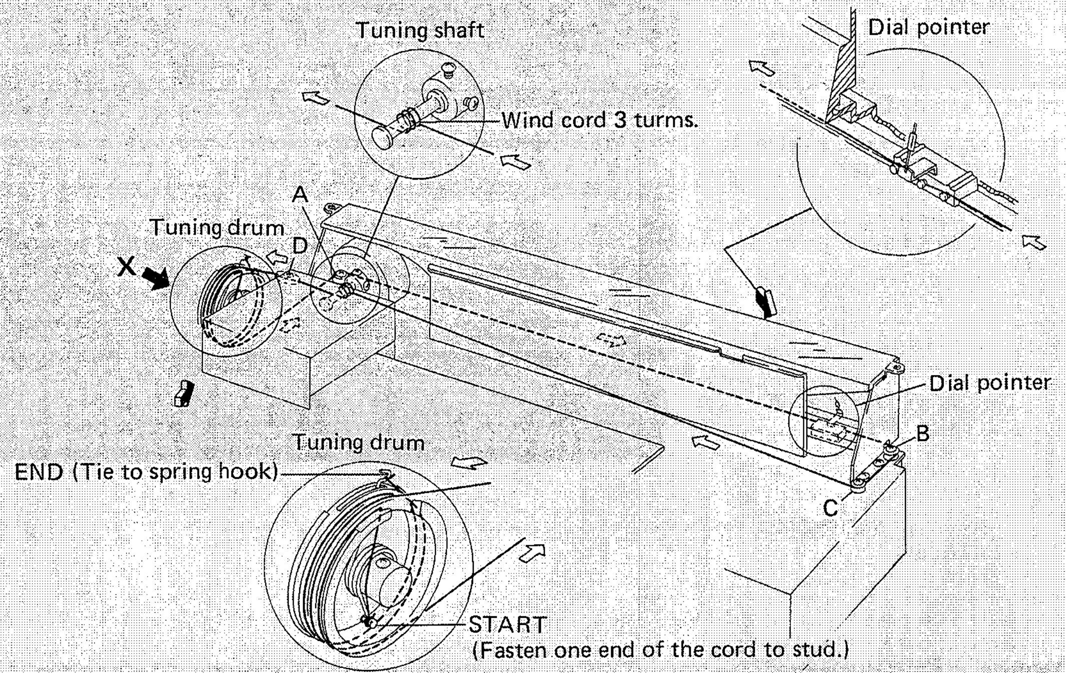

Tuning shaft
Wind cord 3 turms.
Dial pointer
A
Tuning drum
D
X
Dial pointer
B
Tuning drum
END (Tie to spring hook)
C
START
(Fasten one end of the cord to stud.)

Fig. 27

10. ADJUSTMENTS

10.1 AM SECTION

1. Connect measuring equipment as shown in Fig. 28.
2. Set AM SG to 30% modulation at 400Hz and 30dB output.
3. Set AM switch on SX-1050 front panel to ON.
4. Tune AM SG and SX-1050 to dial readings of 600kHz.
5. Adjust cores of T9 — T8 — AM ferrite antenna for maximum audio frequency output level.
6. Tune AM SG and SX-1050 to dial readings of 1400kHz.
7. Adjust trimmers TC5 — TC6 — TC7 for maximum audio frequency output level.
8. Repeat steps 4 ~ 7 and adjust for maximum output and minimum deviation at each received frequency.

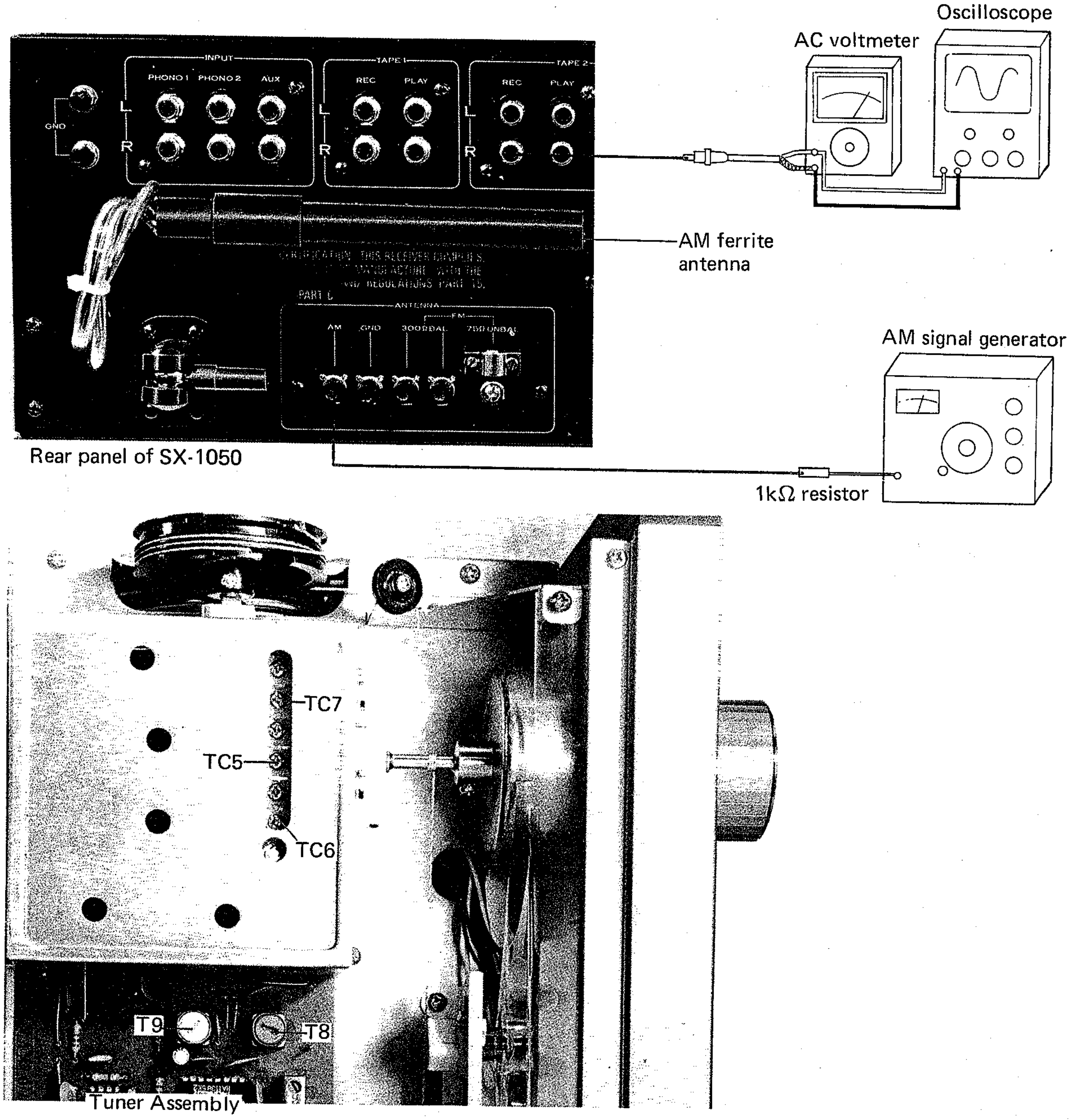

Oscilloscope
AC voltmeter
INPUT
PHONO 1
PHONO 2
AUX
TAPE 1
REC
PLAY
TAPE 2
REC
PLAY
GND
L
R
ANTENNA
AM
GND
300Ω BAL
FM
75Ω UNBAL
AM ferrite antenna
AM signal generator
Rear panel of SX-1050
1kΩ resistor
TC7
TC5
TC6
T9
T8
Tuner Assembly

Fig. 28

10.2 FM SECTION

FM Tracking

1. Connect measuring equipment as shown in Fig. 29.
2. Set FM SG to 100% modulation (±75kHz deviation) at 400Hz and 100dB output.
3. On SX-1050 front panel, set FM switch to ON, FM muting to OFF and VOLUME control to minimum position.
4. Set TC4 to center of turning range.
5. Tune FM SG and SX-1050 to dial readings of 90MHz.
6. Adjust T4 core for maximum indication on Signal meter.
7. Adjust T6 core for center of scale indication on Tuning meter.
8. Set FM SG output to 8 ~ 10dB and adjust cores of T1, T2, and T3 for maximum indication on Signal meter.
9. Tune FM SG and SX-1050 to dial readings of 106MHz.
10. Set FM SG output to 100dB and adjust TC4 for maximum indication on Signal meter.
11. Set FM SG output to 8 ~ 10dB and adjust TC1, TC2 and TC3 for maximum indication on Signal meter.
12. Repeat above adjustment steps 5 ~ 11 and adjust for optimum conditions.
13. Tune FM SG and SX-1050 to dial readings of 90MHz.
14. Adjust T5 core for maximum indication on Signal meter.
15. Detune SX-1050 (to noise only).
16. Adjust T6 for center of scale indication on Tuning meter.
17. Tune FM SG and SX-1050 to dial readings of 98MHz.
18. Set FM SG output to 60dB and adjust upper core of T7 for DC millivolt meter reading of Less than ±10mV.
19. Adjust lower core of T7 for minimum audio frequency output distortion.
20. Confirm DC millivolt meter reading of less than ±10mV. If it exceeds ±10mV, repeat steps 18 and 19.
21. Set FM SG for 100dB output and adjust VR1 so that Signal meter indicates 5 of the scale.

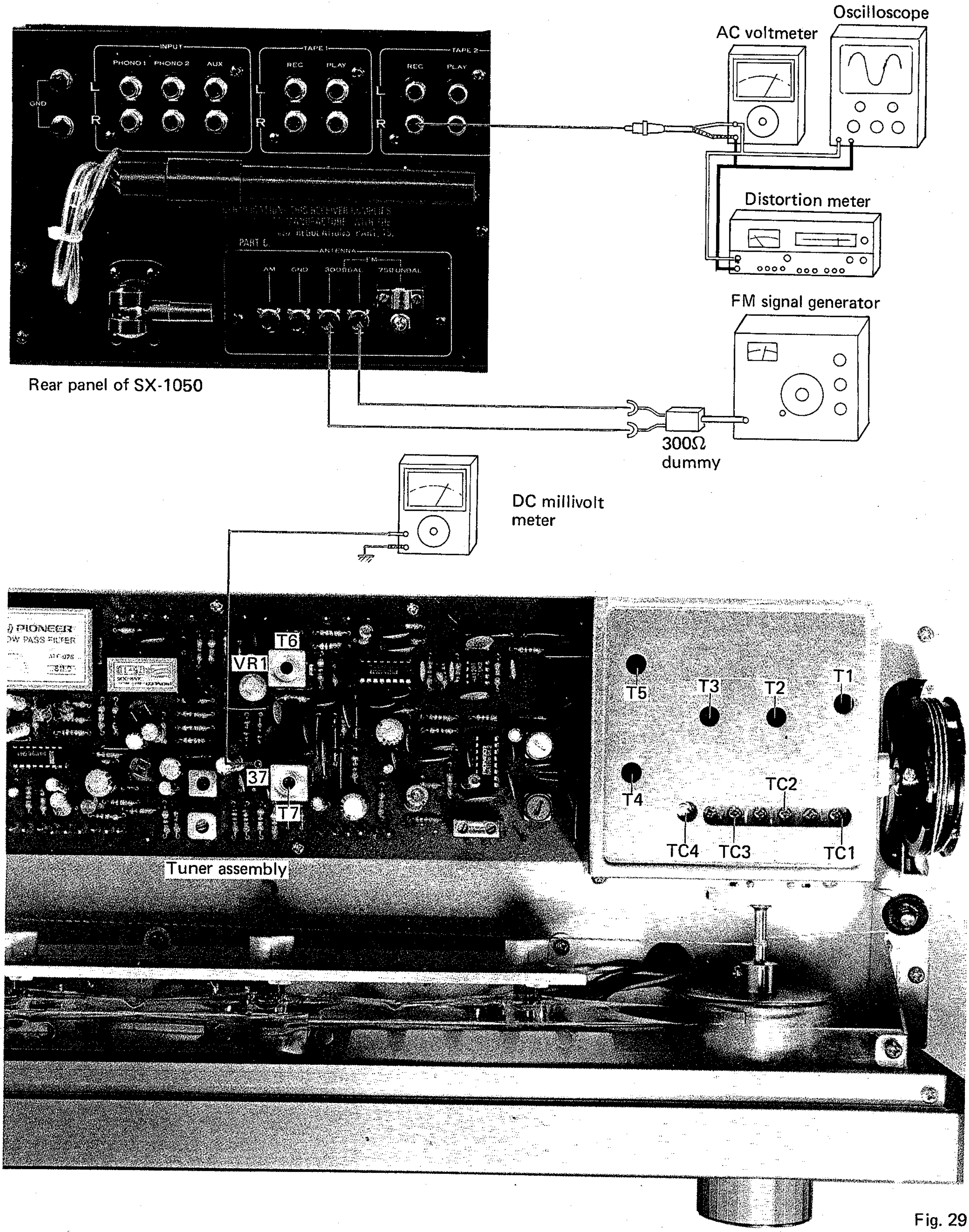

Oscilloscope
AC voltmeter
Distortion meter
FM signal generator
INPUT
PHONO 1
PHONO 2
AUX
TAPE 1
REC
PLAY
TAPE 2
GND
L
R
ANTENNA
AM
300Ω BAL
FM
75Ω UNBAL
Rear panel of SX-1050
300Ω
dummy
DC millivolt
meter
T6
VR1
T5
T3
T2
T1
37
T4
TC2
T7
TC4
TC3
TC1
Tuner assembly

Fig. 29

MPX Adjustment

1. Connect measuring equipment as shown in Fig. 31.
2. Tune FM SG and SX-1050 to dial readings of 98MHz.
3. Set FM SG for 60dB unmodulated output.
4. Connect the output signal (19kHz) of MPX SG PILOT OUT terminal to the horizontal input of an oscilloscope, and pin 22 of the tuner assembly (AWE-067) via a probe to the oscilloscope vertical input.
5. Adjust VR3 so that lissajous pattern displayed on oscilloscope becomes stationary (Fig. 30).
6. Set MPX SG to 67.5kHz deviation at 1kHz for left and right channels, and to 7.5kHz deviation for 19kHz pilot signal.
7. Adjust T5 core for minimum audio frequency distortion. Take care to turn core only within ±180°.
8. Adjust VR2 for minimum signal leakage from R channel to L channel, and from L channel to R channel.

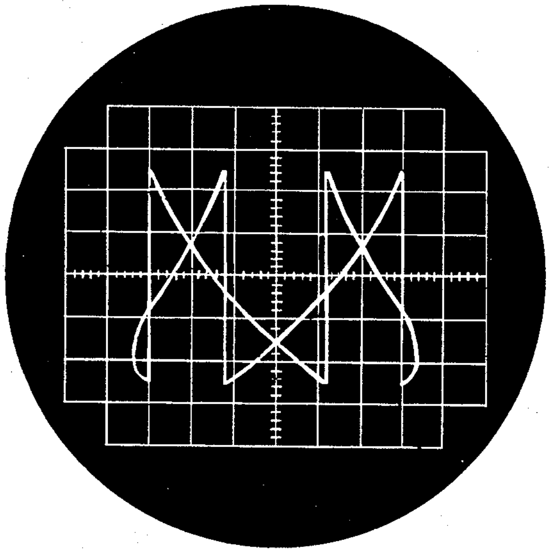


Fig. 30 Lissajous Pattern

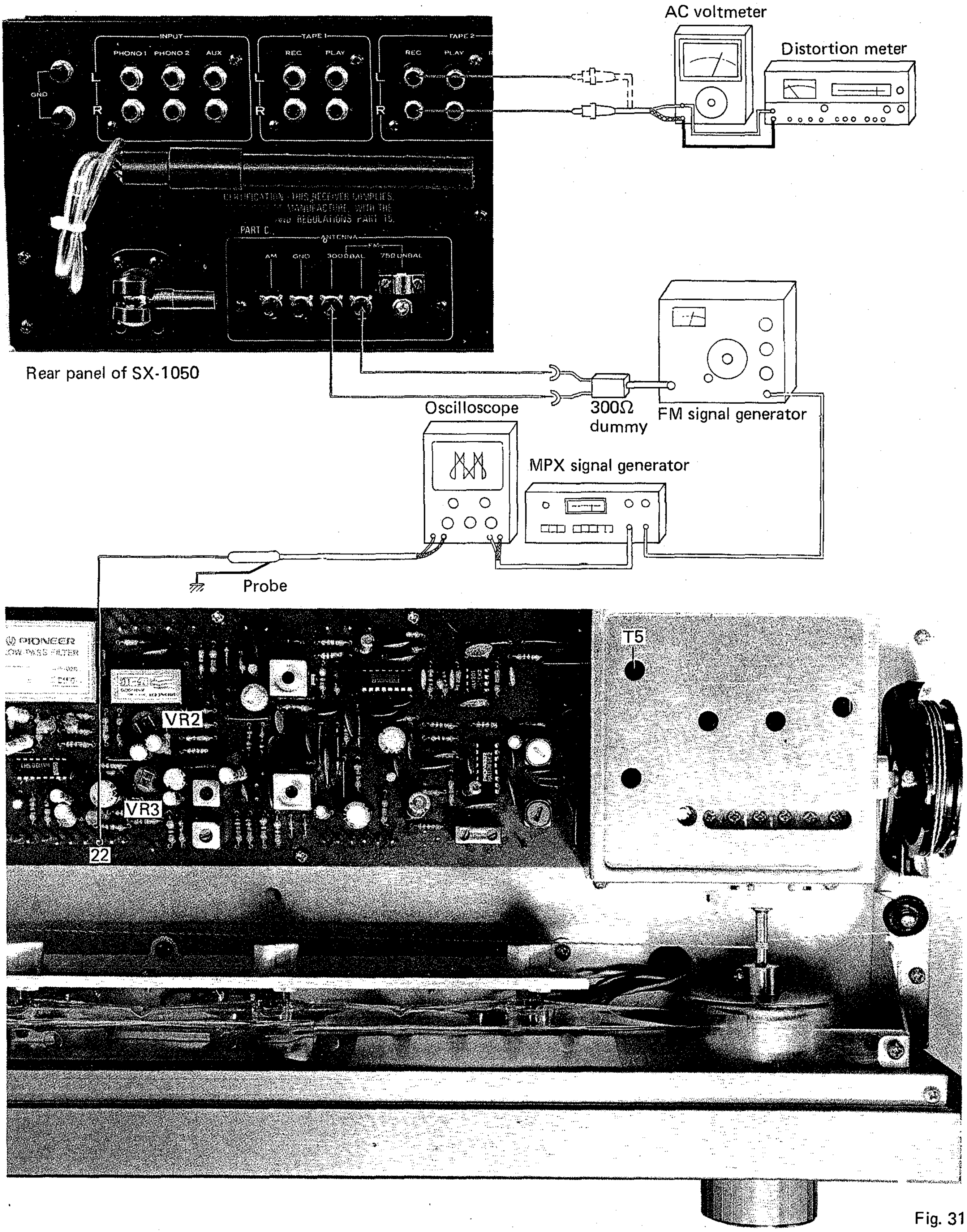

AC voltmeter
Distortion meter
INPUT
PHONO 1
PHONO 2
AUX
TAPE 1
REC
PLAY
TAPE 2
GND
L
R
ANTENNA
FM
AM
GND
300Ω BAL
75Ω UNBAL
Rear panel of SX-1050
Oscilloscope
300Ω
dummy
FM signal generator
MPX signal generator
Probe
PIONEER
LOW PASS FILTER
VR2
VR3
22
T5

Fig. 31

10.3 POWER AMPLIFIER SECTION

DC Balance Adjustment

1. Connect DC voltmeter as shown in Fig. 32.
2. Do not connect load to speaker terminals. Set VOLUME control to minimum (fully counter-clockwise).
3. Adjust VR1 (L channel) and VR2 (R channel) for 0V indication on DC voltmeter.

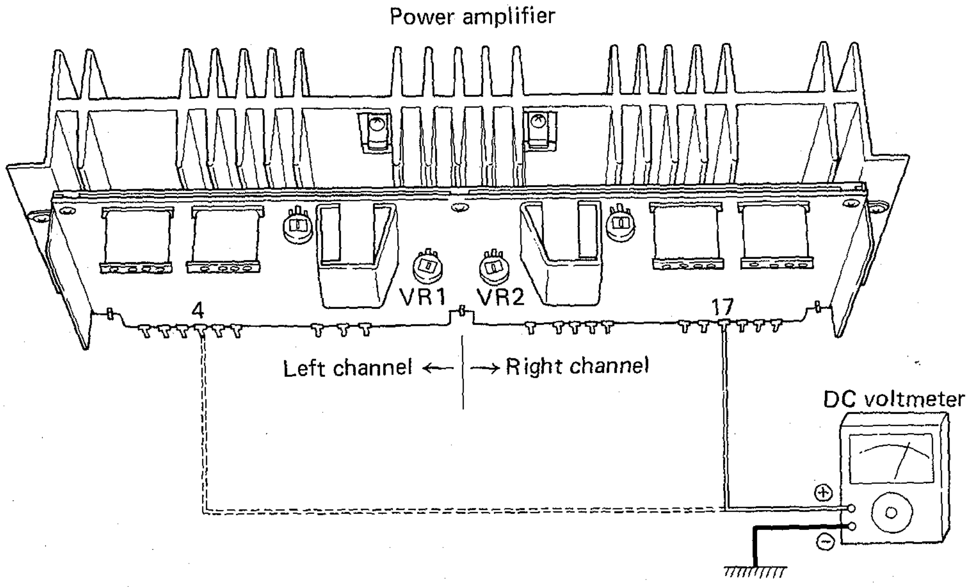

Power amplifier
VR1
VR2
4
17
Left channel ←
→ Right channel
DC voltmeter
⊕
⊖

Fig. 32

Idle Current Adjustment

1. Connect DC voltmeter as shown in Fig. 33.
2. Do not connect load to speaker terminals. Set VOLUME control to minimum (fully counter-clockwise).
3. Turn VR3 and VR4 (shown in Fig. 33) fully counter-clockwise, then set POWER switch to ON.
4. 1~ 2 minutes after turning on the power, adjust VR3 (L channel) and VR4 (R channel) for 50mV indication on DC voltmeter.
5. 20 minutes after turning on the power, again adjust VR3 and VR4 for 50mV indication on DC voltmeter.

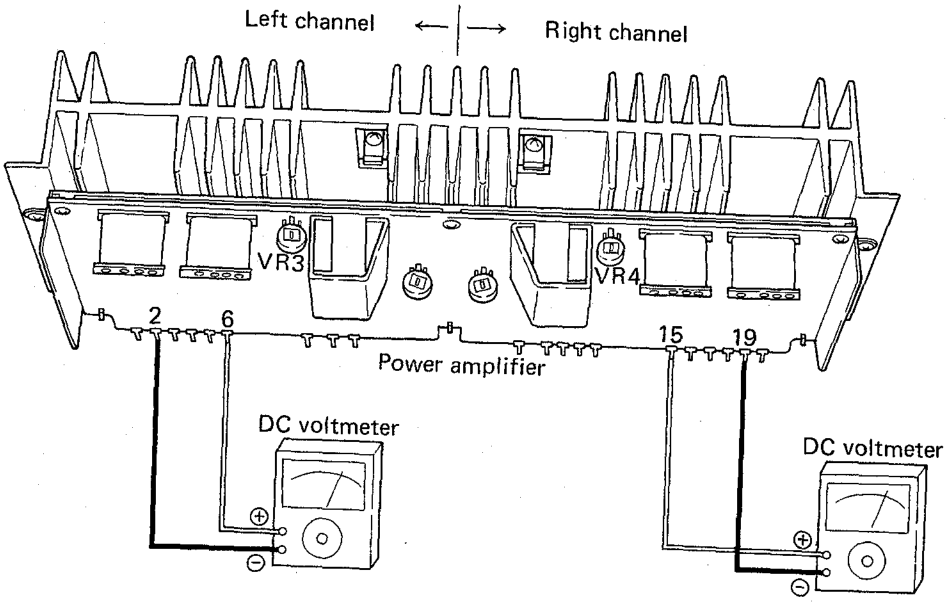
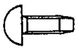
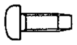
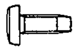
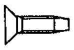
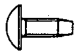
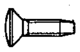
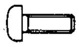
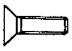
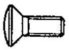
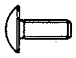
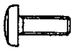
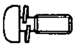
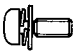
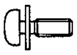

Left channel
Right channel
VR3
VR4
2
6
15
19
Power amplifier
DC voltmeter
DC voltmeter
⊕
⊖
⊕
⊖

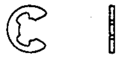
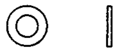
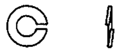
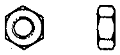
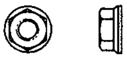
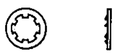
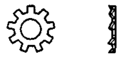
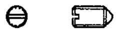
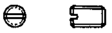
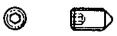
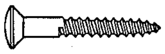
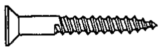
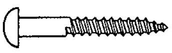
Fig. 33

11. EXPLODED VIEW

NOMENCLATURE OF SCREWS, WASHERS AND NUTS

The following symbols stand for screws, washers and nuts as shown in exploded view.

Symbol	Description	Shape
RT	Brazier head tapping screw	
PT	Pan head tapping screw	
BT	Binding head tapping screw	
CT	Countersunk head tapping screw	
TT	Truss head tapping screw	
OCT	Oval countersunk head tapping screw	
PM	Pan head machine screw	
CM	Countersunk head machine screw	
OCM	Oval countersunk head machine screw	
TM	Truss head machine screw	
BM	Binding head machine screw	
PSA	Pan head screw with spring lock washer	
PSB	Pan head screw with spring lock washer and flat washer	
PSF	Pan head screw with flat washer	

Symbol	Description	Shape
EW	E type washer	
FW	Flat washer	
SW	Spring lock washer	
N	Nut	
WN	Washer faced nut	
ITW	Internal toothed lock washer	
OTW	Outernal toothed lock washer	
SC	Slotted set screw (Cone point)	
SF	Slotted set screw (Flat point)	
HS	Hexagon socket headless set screw	
OCW	Oval countersunk head wood screw	
CW	Countersunk head wood screw	
RW	Round head wood screw	

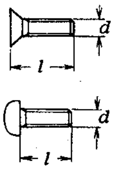
EXAMPLE

PM 3x8

length in mm (*l*)

diameter in mm (*d*)

Symbol

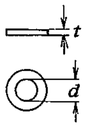


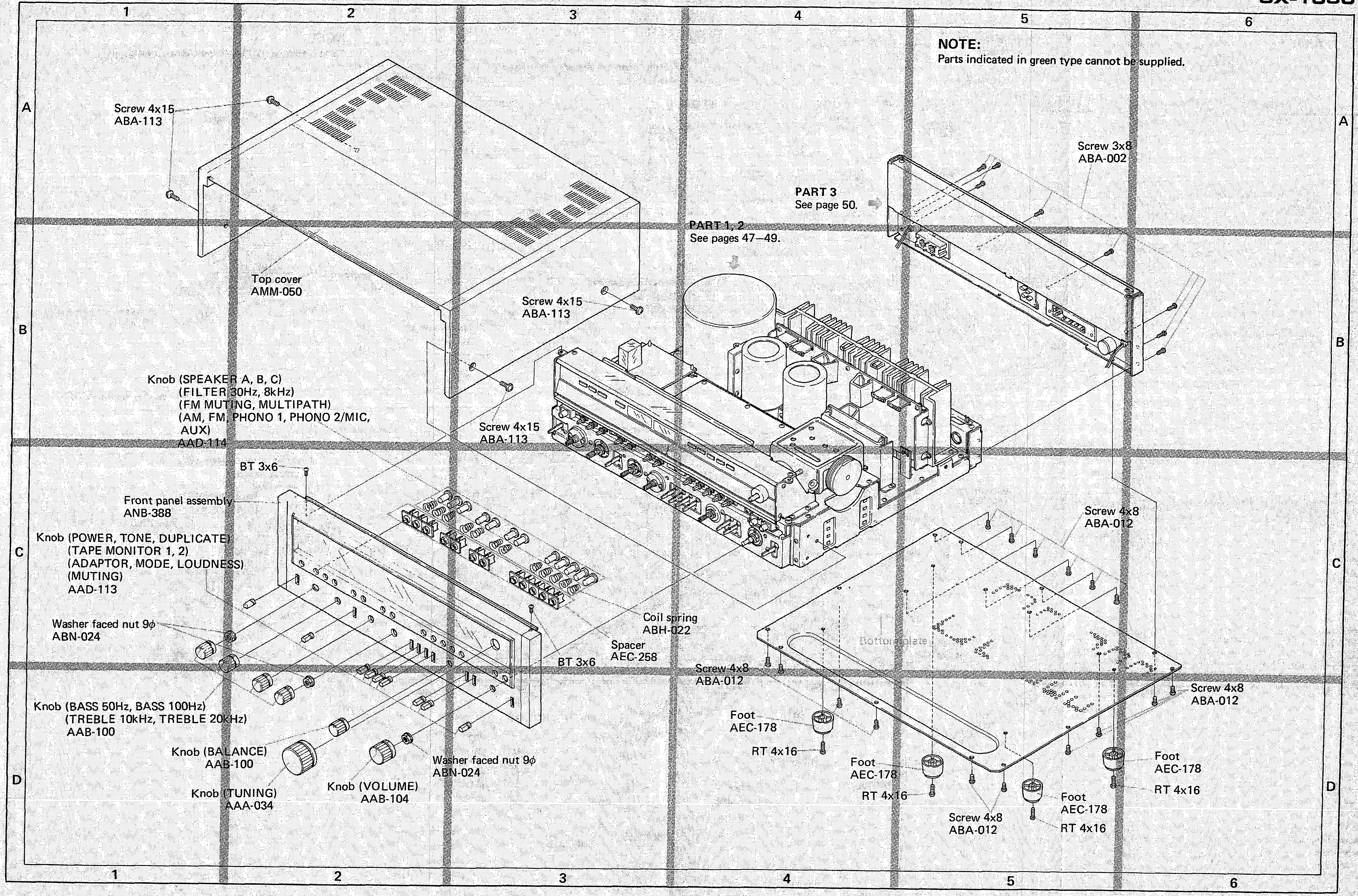
FW $9\phi\times1^{t}$

thickness in mm (*t*)

diameter in mm (*d*)

Symbol

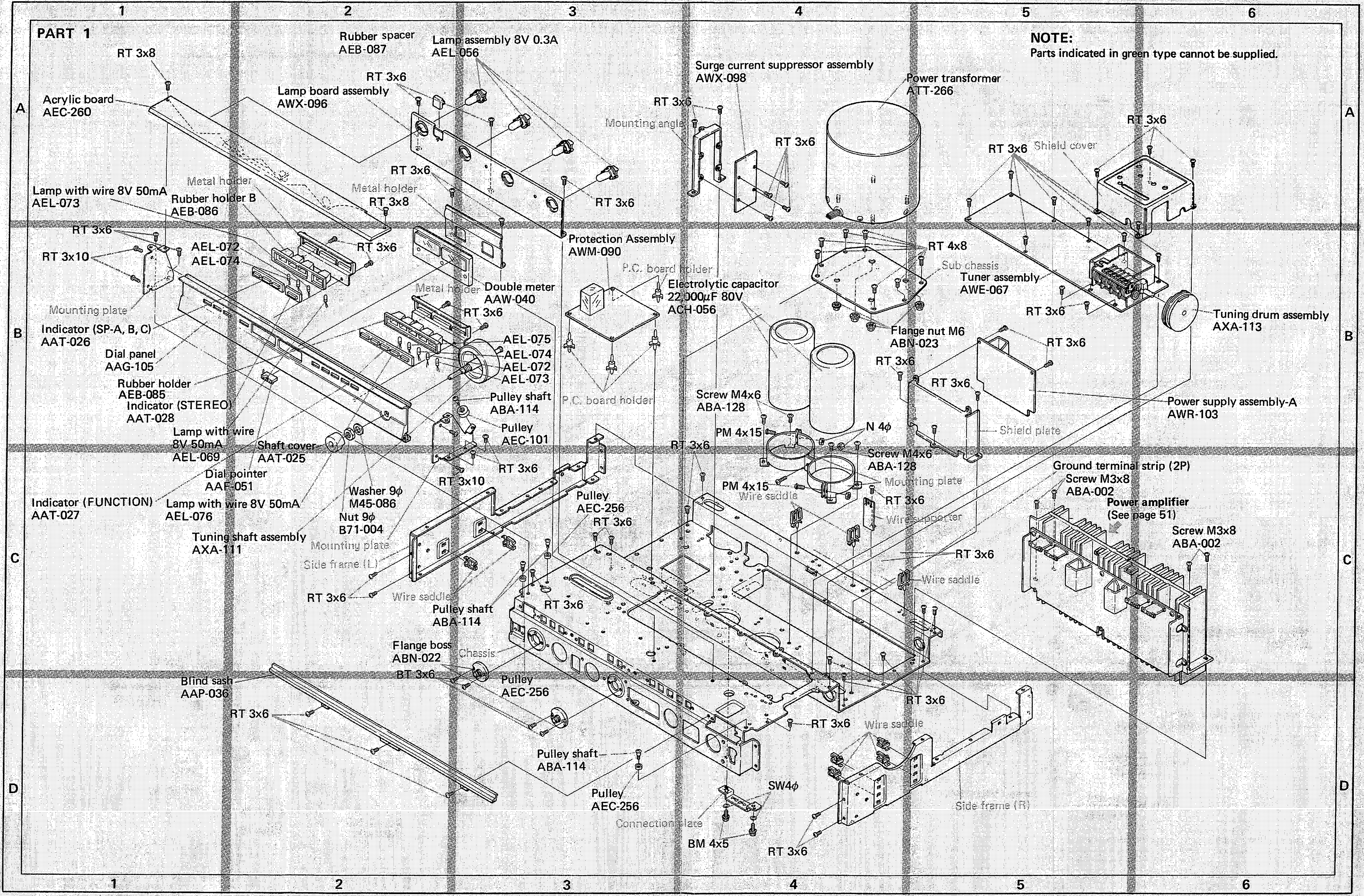




NOTE:
Parts indicated in green type cannot be supplied.

1
2
3
4
5
6
A
B
C
D
Screw 4x15
ABA-113
Top cover
AMM-050
Screw 4x15
ABA-113
PART 1, 2
See pages 47–49.
PART 3
See page 50.
Screw 3x8
ABA-002
Knob (SPEAKER A, B, C)
(FILTER 30Hz, 8kHz)
(FM MUTING, MULTIPATH)
(AM, FM, PHONO 1, PHONO 2/MIC, AUX)
AAD-114
Screw 4x15
ABA-113
BT 3x6
Front panel assembly
ANB-388
Knob (POWER, TONE, DUPLICATE)
(TAPE MONITOR 1, 2)
(ADAPTOR, MODE, LOUDNESS)
(MUTING)
AAD-113
Screw 4x8
ABA-012
Washer faced nut 9ϕ
ABN-024
Coil spring
ABH-022
Spacer
AEC-258
BT 3x6
Bottom plate
Screw 4x8
ABA-012
Screw 4x8
ABA-012
Knob (BASS 50Hz, BASS 100Hz)
(TREBLE 10kHz, TREBLE 20kHz)
AAB-100
Foot
AEC-178
RT 4x16
Knob (BALANCE)
AAB-100
Washer faced nut 9ϕ
ABN-024
Knob (TUNING)
AAA-034
Knob (VOLUME)
AAB-104
Foot
AEC-178
RT 4x16
Screw 4x8
ABA-012
Foot
AEC-178
RT 4x16
Foot
AEC-178
RT 4x16

PART 1



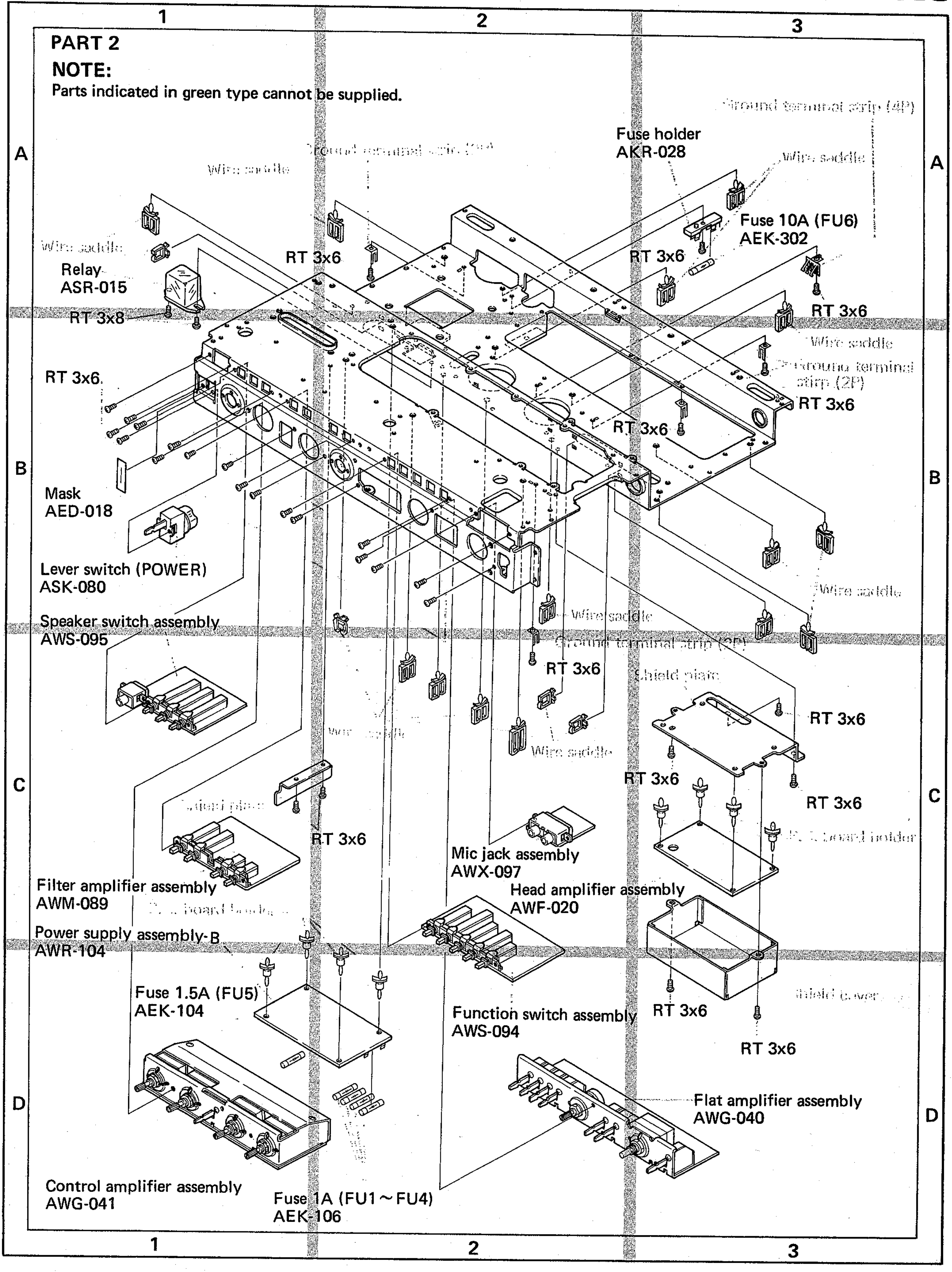
NOTE:
Parts indicated in green type cannot be supplied.

1
2
3
4
5
6
A
B
C
D
RT 3x8
Acrylic board
AEC-260
Rubber spacer
AEB-087
Lamp assembly 8V 0.3A
AEL-056
RT 3x6
Lamp board assembly
AWX-096
Surge current suppressor assembly
AWX-098
RT 3x6
Mounting angle
RT 3x6
Power transformer
ATT-266
RT 3x6
RT 3x6
Shield cover
Metal holder
Lamp with wire 8V 50mA
AEL-073
Rubber holder B
AEB-086
RT 3x6
Metal holder
RT 3x8
RT 3x6
RT 3x6
RT 3x10
AEL-072
AEL-074
RT 3x6
Protection Assembly
AWM-090
RT 4x8
Sub chassis
Tuner assembly
AWE-067
P.C. board holder
Electrolytic capacitor
22,000μF 80V
ACH-056
Metal holder
Double meter
AAW-040
Mounting plate
RT 3x6
RT 3x6
Tuning drum assembly
AXA-113
Indicator (SP-A, B, C)
AAT-026
Flange nut M6
ABN-023
RT 3x6
AEL-075
AEL-074
AEL-072
AEL-073
Dial panel
AAG-105
RT 3x6
RT 3x6
Rubber holder
AEB-085
Indicator (STEREO)
AAT-028
P.C. board holder
Screw M4x6
ABA-128
Pulley shaft
ABA-114
Power supply assembly-A
AWR-103
Pulley
AEC-101
Lamp with wire
8V 50mA
AEL-069
PM 4x15
N 4ϕ
Shield plate
Shaft cover
AAT-025
RT 3x6
RT 3x6
Screw M4x6
ABA-128
Dial pointer
AAF-051
RT 3x10
Ground terminal strip (2P)
Screw M3x8
ABA-002
Mounting plate
PM 4x15
Washer 9ϕ
M45-086
Pulley
AEC-256
Wire saddle
RT 3x6
Indicator (FUNCTION)
AAT-027
Lamp with wire 8V 50mA
AEL-076
Nut 9ϕ
B71-004
RT 3x6
Wire supporter
Power amplifier
(See page 51)
Tuning shaft assembly
AXA-111
Screw M3x8
ABA-002
Mounting plate
RT 3x6
Side frame (L)
Wire saddle
RT 3x6
Wire saddle
RT 3x6
Pulley shaft
ABA-114
Flange boss
ABN-022
Chassis
Blind sash
AAP-036
BT 3x6
Pulley
AEC-256
RT 3x6
RT 3x6
RT 3x6
Wire saddle
Pulley shaft
ABA-114
SW4ϕ
Pulley
AEC-256
Side frame (R)
Connection plate
BM 4x5
RT 3x6

PART 2

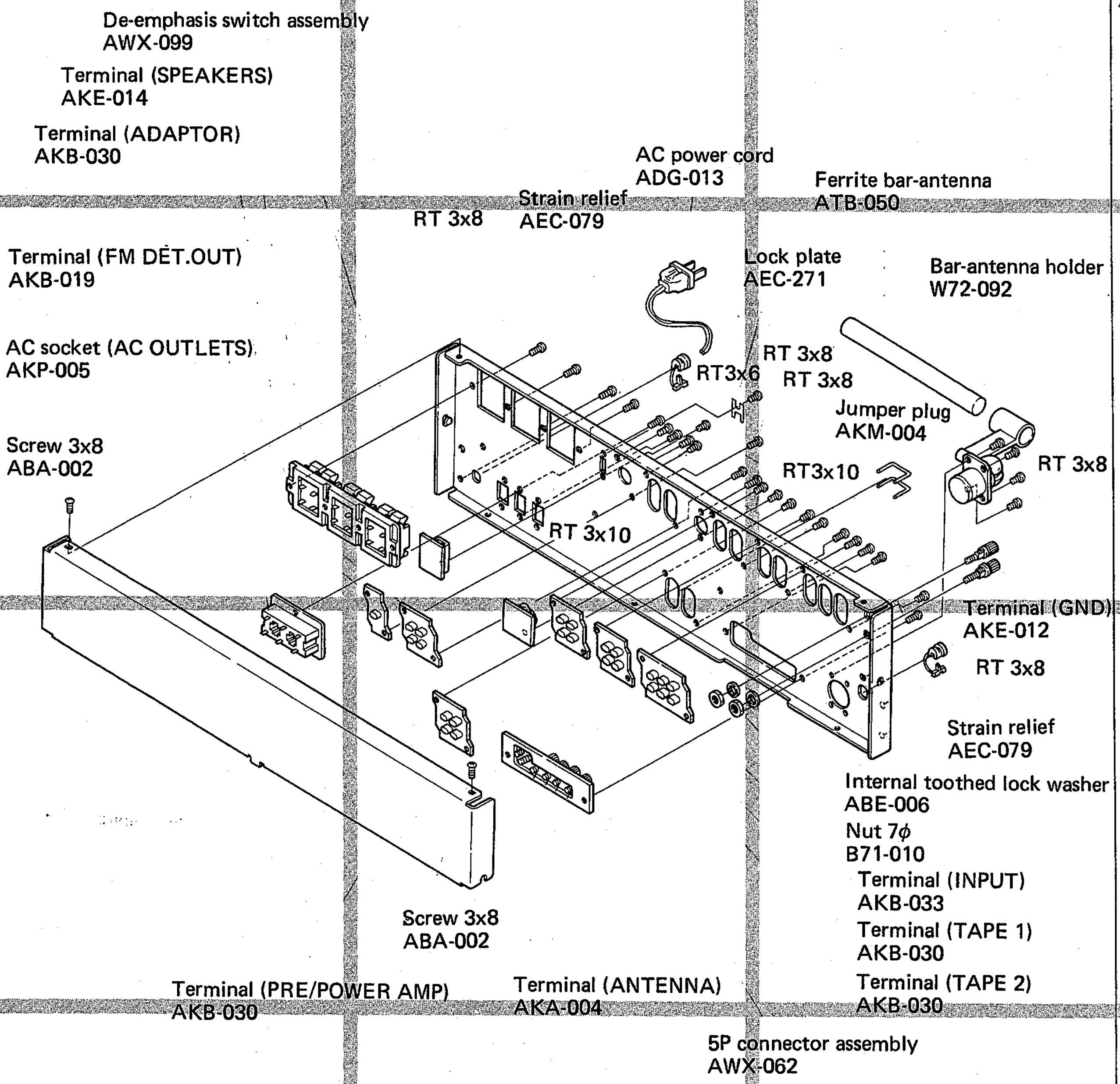
NOTE:

Parts indicated in green type cannot be supplied.


1
2
3
A
B
C
D
Ground terminal strip (4P)
Fuse holder
AKR-028
Wire saddle
Ground terminal strip (2P)
Wire saddle
Fuse 10A (FU6)
AEK-302
Wire saddle
Relay
ASR-015
RT 3x6
RT 3x6
RT 3x8
RT 3x6
RT 3x6
Wire saddle
Ground terminal strip (2P)
RT 3x6
RT 3x6
Mask
AED-018
Lever switch (POWER)
ASK-080
Wire saddle
Speaker switch assembly
AWS-095
Wire saddle
Ground terminal strip (2P)
RT 3x6
Shield plate
RT 3x6
Wire saddle
Wire saddle
RT 3x6
RT 3x6
Shield plate
RT 3x6
P.C. board holder
Mic jack assembly
AWX-097
Filter amplifier assembly
AWM-089
P.C. board holder
Head amplifier assembly
AWF-020
Power supply assembly-B
AWR-104
Fuse 1.5A (FU5)
AEK-104
Function switch assembly
AWS-094
RT 3x6
Shield cover
RT 3x6
Flat amplifier assembly
AWG-040
Control amplifier assembly
AWG-041
Fuse 1A (FU1～FU4)
AEK-106

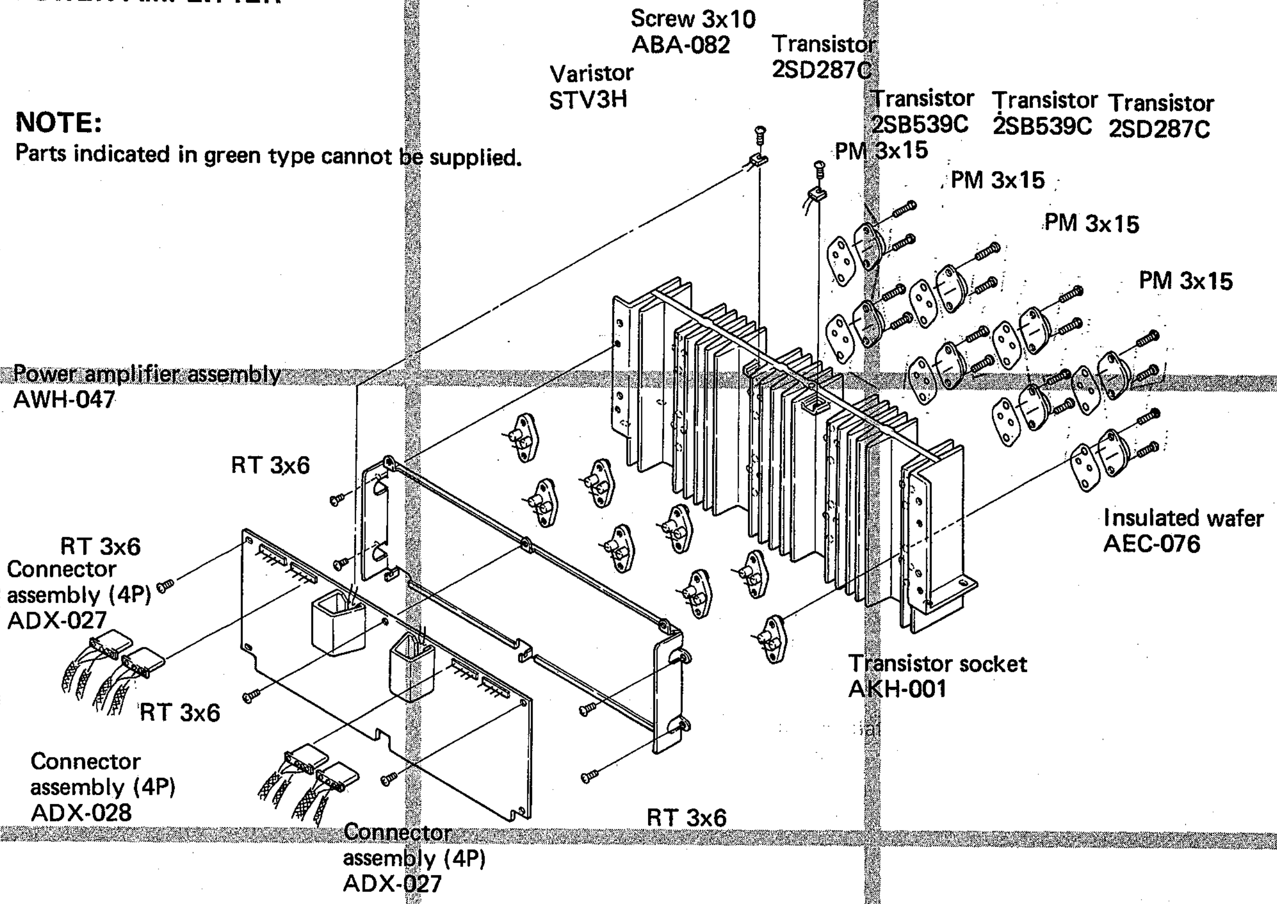
PART 3

NOTE:
Parts indicated in green type cannot be supplied.

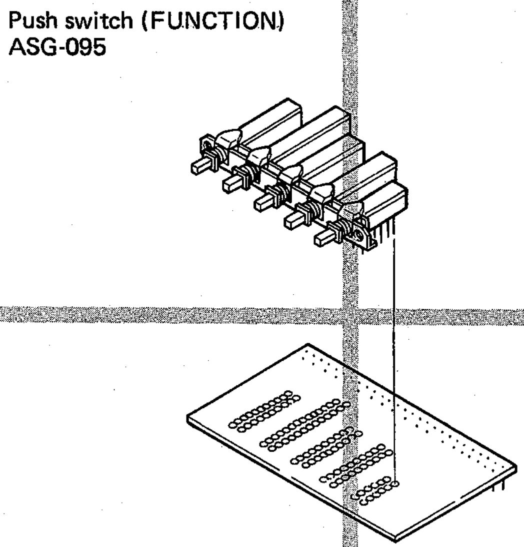

De-emphasis switch assembly
AWX-099
Terminal (SPEAKERS)
AKE-014
Terminal (ADAPTOR)
AKB-030
AC power cord
ADG-013
Ferrite bar-antenna
ATB-050
Strain relief
AEC-079
RT 3x8
Terminal (FM DET.OUT)
AKB-019
Lock plate
AEC-271
Bar-antenna holder
W72-092
AC socket (AC OUTLETS)
AKP-005
RT 3x8
RT3x6
RT 3x8
Jumper plug
AKM-004
Screw 3x8
ABA-002
RT3x10
RT 3x8
RT 3x10
Terminal (GND)
AKE-012
RT 3x8
Strain relief
AEC-079
Internal toothed lock washer
ABE-006
Nut 7ϕ
B71-010
Terminal (INPUT)
AKB-033
Terminal (TAPE 1)
AKB-030
Screw 3x8
ABA-002
Terminal (TAPE 2)
AKB-030
Terminal (PRE/POWER AMP)
AKB-030
Terminal (ANTENNA)
AKA-004
5P connector assembly
AWX-062

POWER AMPLIFIER

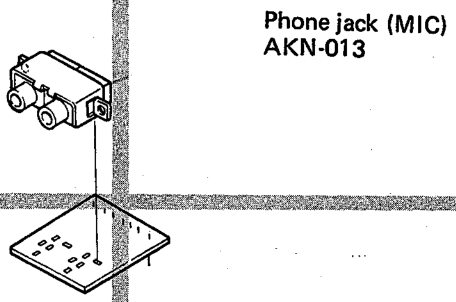
NOTE:
Parts indicated in green type cannot be supplied.

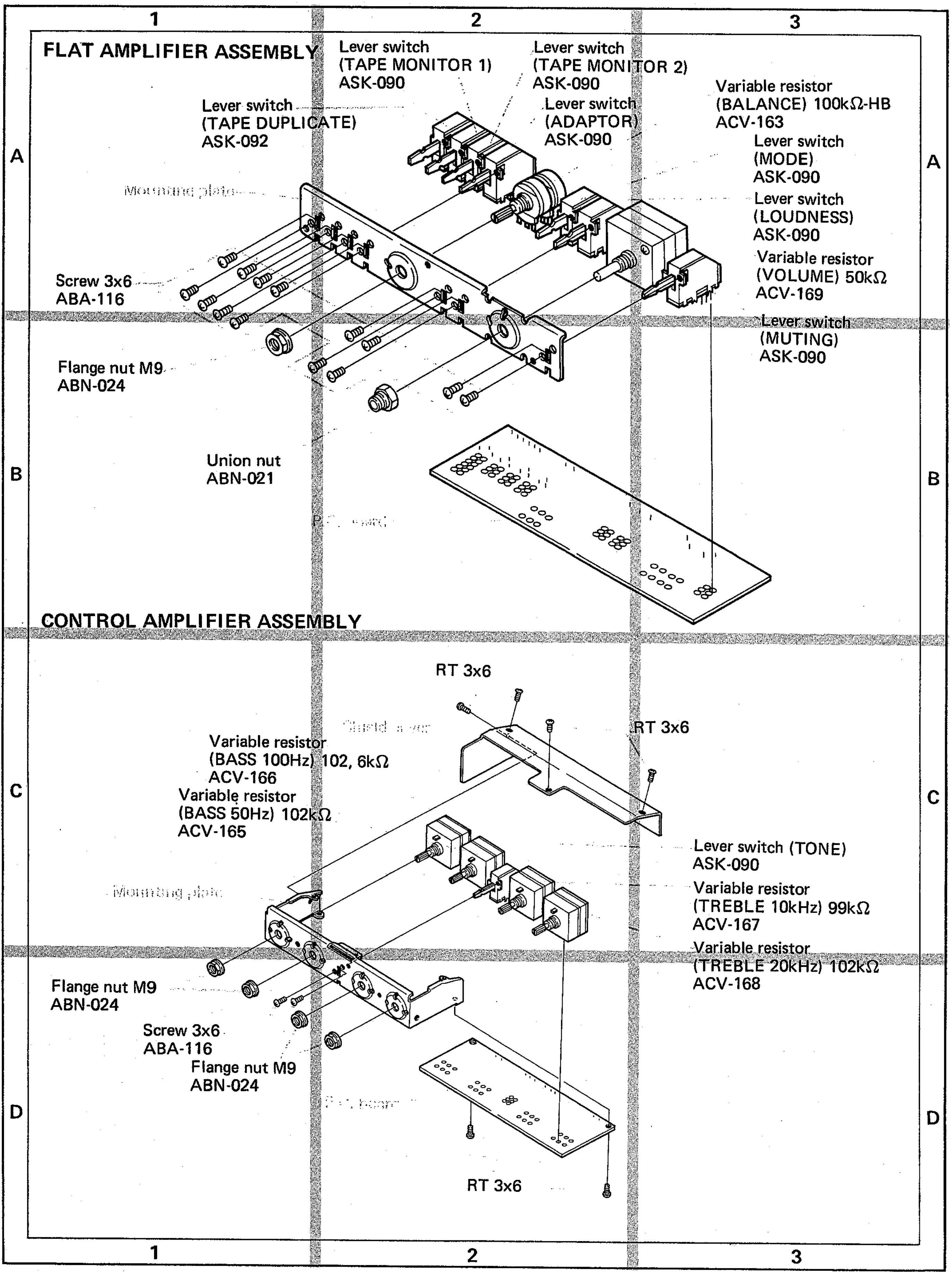

Screw 3x10
ABA-082
Transistor
2SD287C
Varistor
STV3H
Transistor
2SB539C
Transistor
2SB539C
Transistor
2SD287C
PM 3x15
PM 3x15
PM 3x15
PM 3x15
Power amplifier assembly
AWH-047
RT 3x6
RT 3x6
Connector
assembly (4P)
ADX-027
RT 3x6
Insulated wafer
AEC-076
Transistor socket
AKH-001
Connector
assembly (4P)
ADX-028
RT 3x6
Connector
assembly (4P)
ADX-027

FUNCTION SWITCH ASSEMBLY


Push switch (FUNCTION)
ASG-095

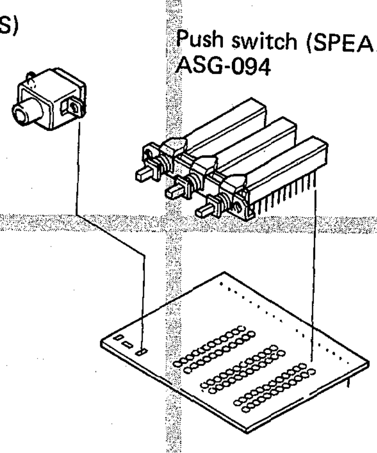
MIC JACK ASSEMBLY


Phone jack (MIC)
AKN-013

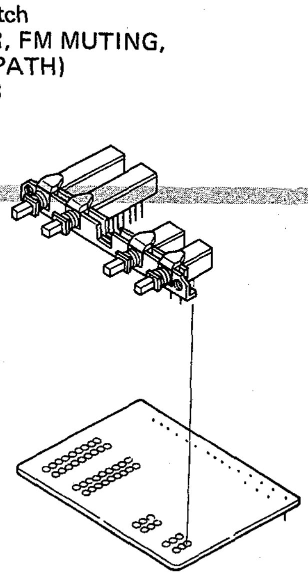
1
2
3
A
B
C
D
FLAT AMPLIFIER ASSEMBLY
Lever switch
(TAPE MONITOR 1)
ASK-090
Lever switch
(TAPE MONITOR 2)
ASK-090
Lever switch
(TAPE DUPLICATE)
ASK-092
Lever switch
(ADAPTOR)
ASK-090
Variable resistor
(BALANCE) 100kΩ-HB
ACV-163
Lever switch
(MODE)
ASK-090
Mounting plate
Lever switch
(LOUDNESS)
ASK-090
Variable resistor
(VOLUME) 50kΩ
ACV-169
Screw 3x6
ABA-116
Lever switch
(MUTING)
ASK-090
Flange nut M9
ABN-024
Union nut
ABN-021
P.C. board
CONTROL AMPLIFIER ASSEMBLY
RT 3x6
Shield cover
RT 3x6
Variable resistor
(BASS 100Hz) 102, 6kΩ
ACV-166
Variable resistor
(BASS 50Hz) 102kΩ
ACV-165
Lever switch (TONE)
ASK-090
Mounting plate
Variable resistor
(TREBLE 10kHz) 99kΩ
ACV-167
Variable resistor
(TREBLE 20kHz) 102kΩ
ACV-168
Flange nut M9
ABN-024
Screw 3x6
ABA-116
Flange nut M9
ABN-024
P.C. board
RT 3x6
1
2
3

SPEAKER SWITCH ASSEMBLY

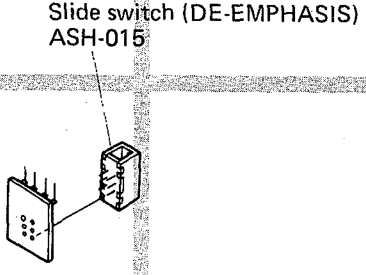
NOTE:
Parts indicated in green type cannot be supplied.


Phone jack (PHONES)
AKN-010
Push switch (SPEAKERS)
ASG-094

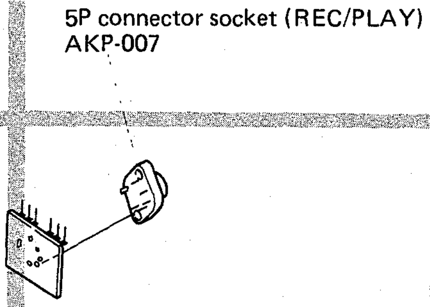
FILTER AMPLIFIER ASSEMBLY


Push switch
(FILTER, FM MUTING,
MULTIPATH)
ASG-098

DE-EMPHASIS SWITCH ASSEMBLY


Slide switch (DE-EMPHASIS)
ASH-015

5P CONNECTOR ASSEMBLY (AWX-062)


5P connector socket (REC/PLAY)
AKP-007

12. SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PARTS LIST

12.1 SCHEMATIC DIAGRAM AND MISCELLANEOUS PARTS

NOTE:
- *Capacitors: in μF unless otherwise noted p:pF*
- *Resistors: in Ω, ¼W unless otherwise noted k:kΩ, M:MΩ*

Miscellaneous Parts List

SEMICONDUCTORS

Symbol	Description	Part No.
Q23	Transistor	2SB539C-S
Q24	Transistor	2SB539C-S
Q25	Transistor	2SD287C-S
Q26	Transistor	2SD287C-S
Q27	Transistor	2SB539C-S
Q28	Transistor	2SB539C-S
Q29	Transistor	2SD287C-S
Q30	Transistor	2SD287C-S

SWITCHES

Symbol	Description	Part No.
S1	Lever switch (POWER)	ASK-080
S2	Relay	ASR-015

TRANSFORMERS AND COIL

Symbol	Description	Part No.
T1	Ferrite balun	T22-025
T2	Ferrite bar-antenna	ATB-050
T3	Power transformer	ATT-266

RESISTOR AND CAPACITORS

Symbol	Description			Part No.
R1	Carbon film	2.2M	½W	RD½PS 225J
C1	Electrolytic	22000	80V	ACH-056
C2	Electrolytic	22000	80V	ACH-056
C3	Ceramic	0.01	150V	ACG-003
C4	Ceramic	0.01	150V	ACG-003
C5	Ceramic	0.01	50V	CKDYF 103Z 50
C6	Ceramic	0.01	50V	CKDYF 103Z 50
C7	Ceramic	0.01	50V	CKDYF 103Z 50
C8	Ceramic	0.01	50V	CKDYF 103Z 50
C9	Ceramic	0.01	50V	CKDYF 103Z 50
C10	Ceramic	0.01	50V	CKDYF 103Z 50
C11	Ceramic	0.01	50V	CKDYF 103Z 50

FUSES

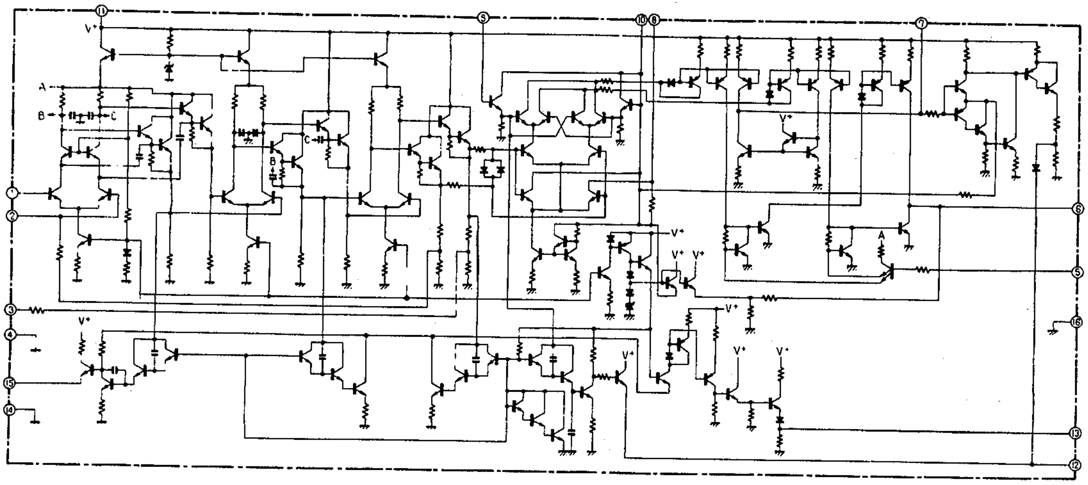
Symbol	Description		Part No.
F1	Fuse	1A	AEK-106
F2	Fuse	1A	AEK-106
F3	Fuse	1A	AEK-106
F4	Fuse	1A	AEK-106
F5	Fuse	1.5A	AEK-104
F6	Fuse	10A	AEK-302

LAMPS

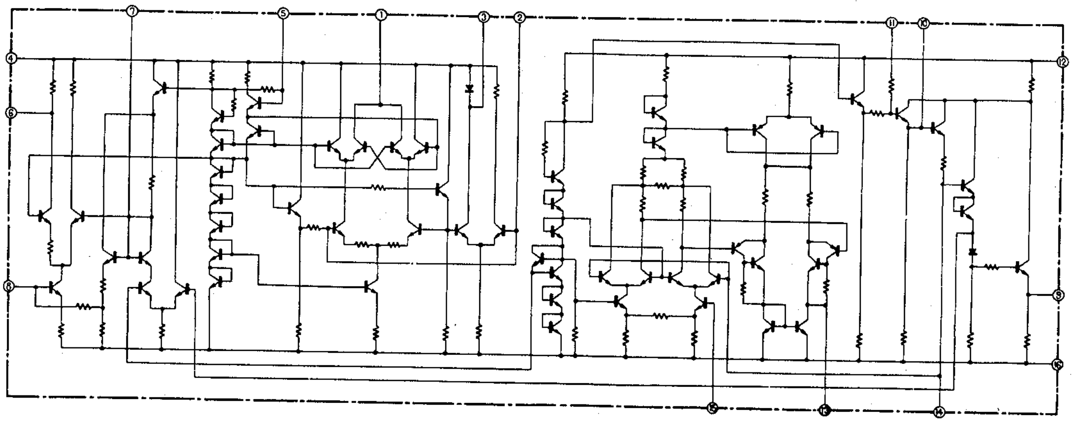
Symbol	Description			Part No.
PL1	Lamp assembly	8V	300mA	AEL-056
PL2	Lamp assembly	8V	300mA	AEL-056
PL3	Lamp assembly	8V	300mA	AEL-056
PL4	Lamp assembly	8V	300mA	AEL-056
PL5	Lamp with wire	8V	50mA	AEL-074
PL6	Lamp with wire	8V	50mA	AEL-072
PL7	Lamp with wire	8V	50mA	AEL-073
PL8	Lamp with wire	8V	50mA	AEL-076
PL9	Lamp with wire	8V	50mA	AEL-075
PL10	Lamp with wire	8V	50mA	AEL-074
PL11	Lamp with wire	8V	50mA	AEL-072
PL12	Lamp with wire	8V	50mA	AEL-073
PL13	Lamp with wire	8V	50mA	AEL-069

Circuit Diagrams of ICs

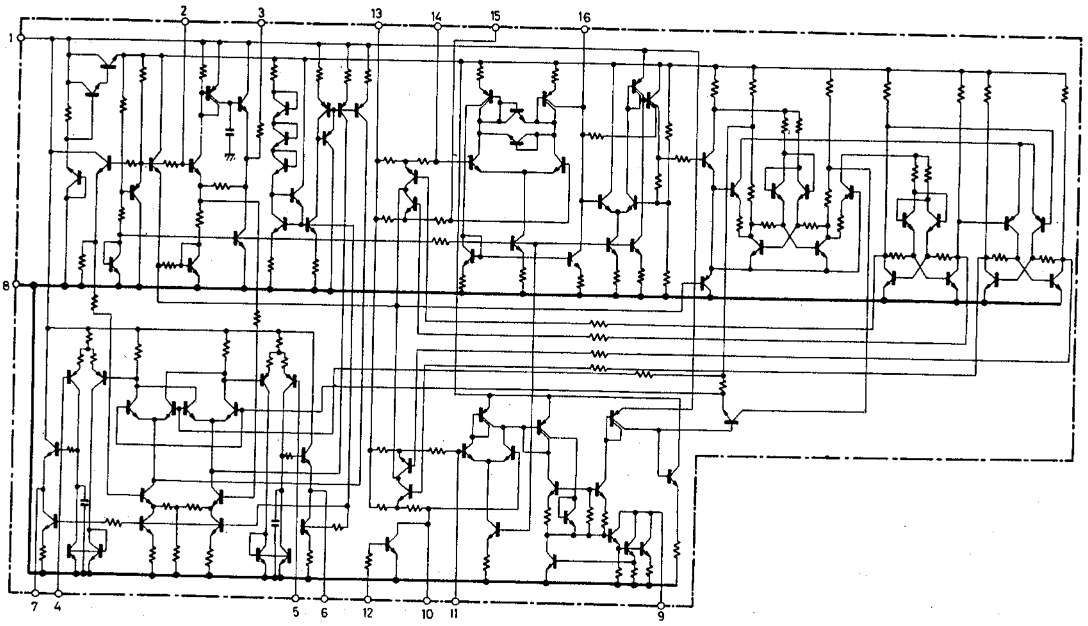
HA1137 (FM IF IC)


⑪
⑤
⑩
⑧
⑦
V⁺
A
B
C
①
②
③
④
⑮
⑭
⑥
⑤
⑯
⑬
⑫

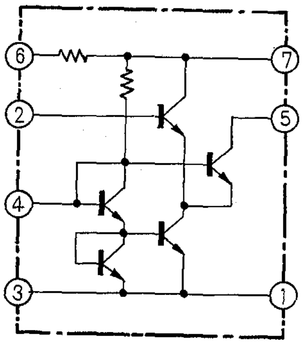
HA1138 (AM IC)


⑦
⑤
①
③
②
⑪
⑩
④
⑥
⑧
⑫
⑨
⑯
⑮
⑬
⑭

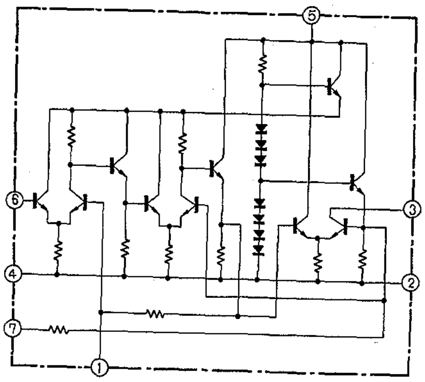
HA1196 (FM MPX IC)


1
2
3
13
14
15
16
8
7
4
5
6
12
10
11
9

HA1201

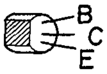


TA7061A

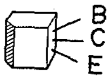


External Appearance of Transistors and ICs

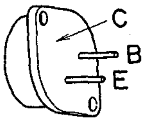
2SA720
2SA733
2SA750
2SA858
2SA872A
2SC945A
2SC1318
2SC1439
2SC1775A



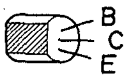
2SC461
2SC717



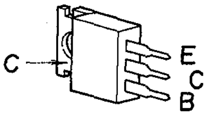
2SB539C
2SD289C



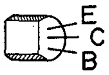
2SC1384



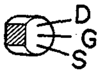
2SB507P
2SB536A
2SD313P
2SD381A
2SD325R



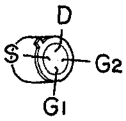
2SA725
2SC869
2SC1312
2SC1313



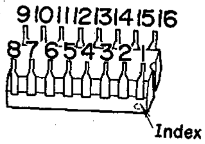
2SK30AW



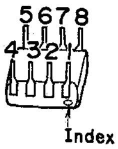
3SK45



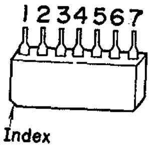
HA1137
HA1138
HA1196


9 10 11 12 13 14 15 16
8 7 6 5 4 3 2 1
Index

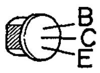
HA1201


5 6 7 8
4 3 2 1
Index

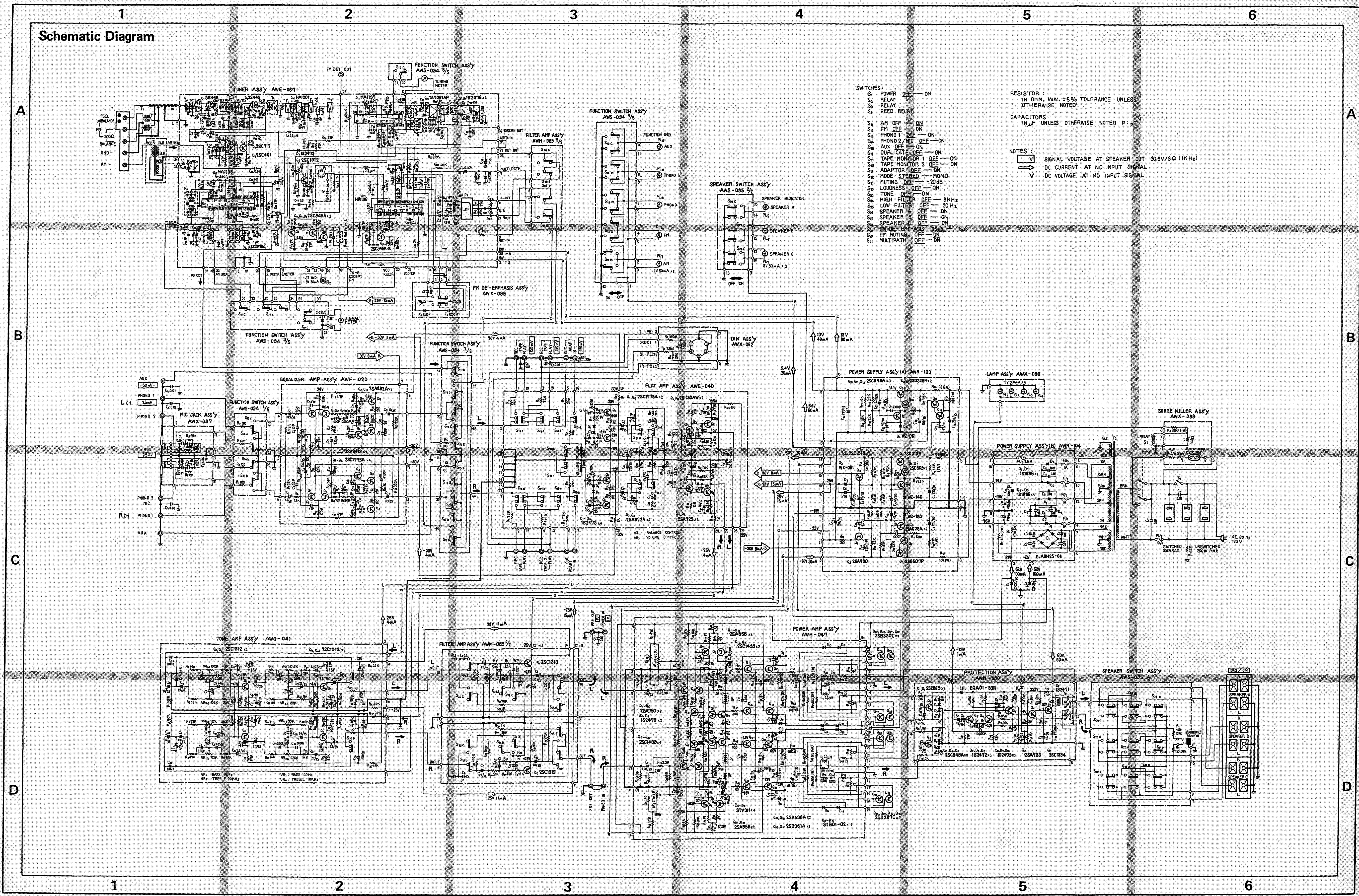
TA7061AP


1 2 3 4 5 6 7
Index

2SA841S



Schematic Diagram


1
2
3
4
5
6
A
B
C
D
TONER ASS'Y AWE-067
FM DET OUT
FUNCTION SWITCH ASS'Y AWS-034 5/5
TUNING METER
FILTER AMP ASS'Y AWH-083 2/2
FM DE-EMPHASIS ASS'Y AWX-089
FUNCTION SWITCH ASS'Y AWS-034 3/5
SIGNAL METER
FUNCTION SWITCH ASS'Y AWS-034 4/5
SPEAKER SWITCH ASS'Y AWS-035 2/2
DIN ASS'Y AWX-062
FUNCTION SWITCH ASS'Y AWS-034 2/5
EQUALIZER AMP ASS'Y AWF-020
MIC JACK ASS'Y AWX-037
FUNCTION SWITCH ASS'Y AWS-034 1/5
FLAT AMP ASS'Y AWG-040
POWER SUPPLY ASS'Y (A) AWR-103
LAMP ASS'Y AWX-036
SURGE KILLER ASS'Y AWX-035
POWER SUPPLY ASS'Y (B) AWR-104
SWITCHED 100W MAX
UNSWITCHED 200W MAX
AC 60 Hz 120 V
TONE AMP ASS'Y AWG-041
FILTER AMP ASS'Y AWH-083 1/2
POWER AMP ASS'Y AWH-047
PROTECTION ASS'Y AWM-030
SPEAKER SWITCH ASS'Y AWS-035 1/2
SPEAKER A
SPEAKER B
SPEAKER C
HEADPHONES
PRE OUT
POWER IN

SWITCHES :

S_1	POWER OFF — ON
S_2	RELAY
S_3	RELAY
S_4	REED RELAY
S_{11}	AM OFF — ON
S_{12}	FM OFF — ON
S_{13}	PHONO 1 OFF — ON
S_{14}	PHONO 2/MIC OFF — ON
S_{15}	AUX OFF — ON
S_{16}	DUPLICATE OFF — ON
S_{17}	TAPE MONITOR 1 OFF — ON
S_{18}	TAPE MONITOR 2 OFF — ON
S_{19}	ADAPTOR OFF — ON
S_{20}	MODE STEREO — MONO
S_{21}	MUTING OFF — -20dB
S_{22}	LOUDNESS OFF — ON
S_{23}	TONE OFF — ON
S_{24}	HIGH FILTER OFF — 8KHz
S_{25}	LOW FILTER OFF — 30 Hz
S_{26}	SPEAKER A OFF — ON
S_{27}	SPEAKER B OFF — ON
S_{28}	SPEAKER C OFF — ON
S_{29}	FM DE-EMPHASIS 25μS — 75μS
S_{30}	FM MUTING OFF — ON
S_{31}	MULTIPATH OFF — ON

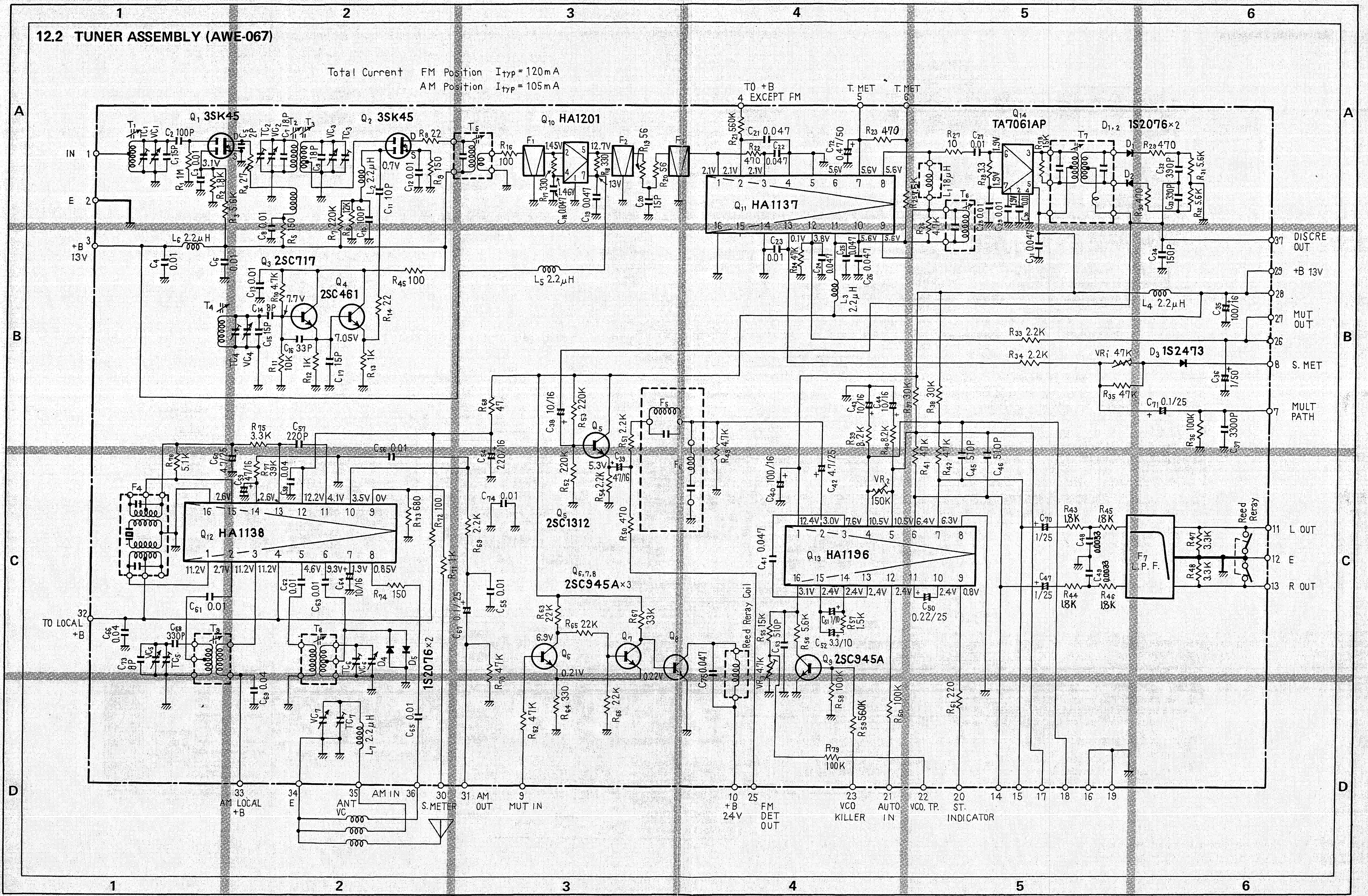
RESISTOR :
IN OHM, 1/4W, ±5% TOLERANCE UNLESS OTHERWISE NOTED.

CAPACITORS
IN μF UNLESS OTHERWISE NOTED P: pF

NOTES :

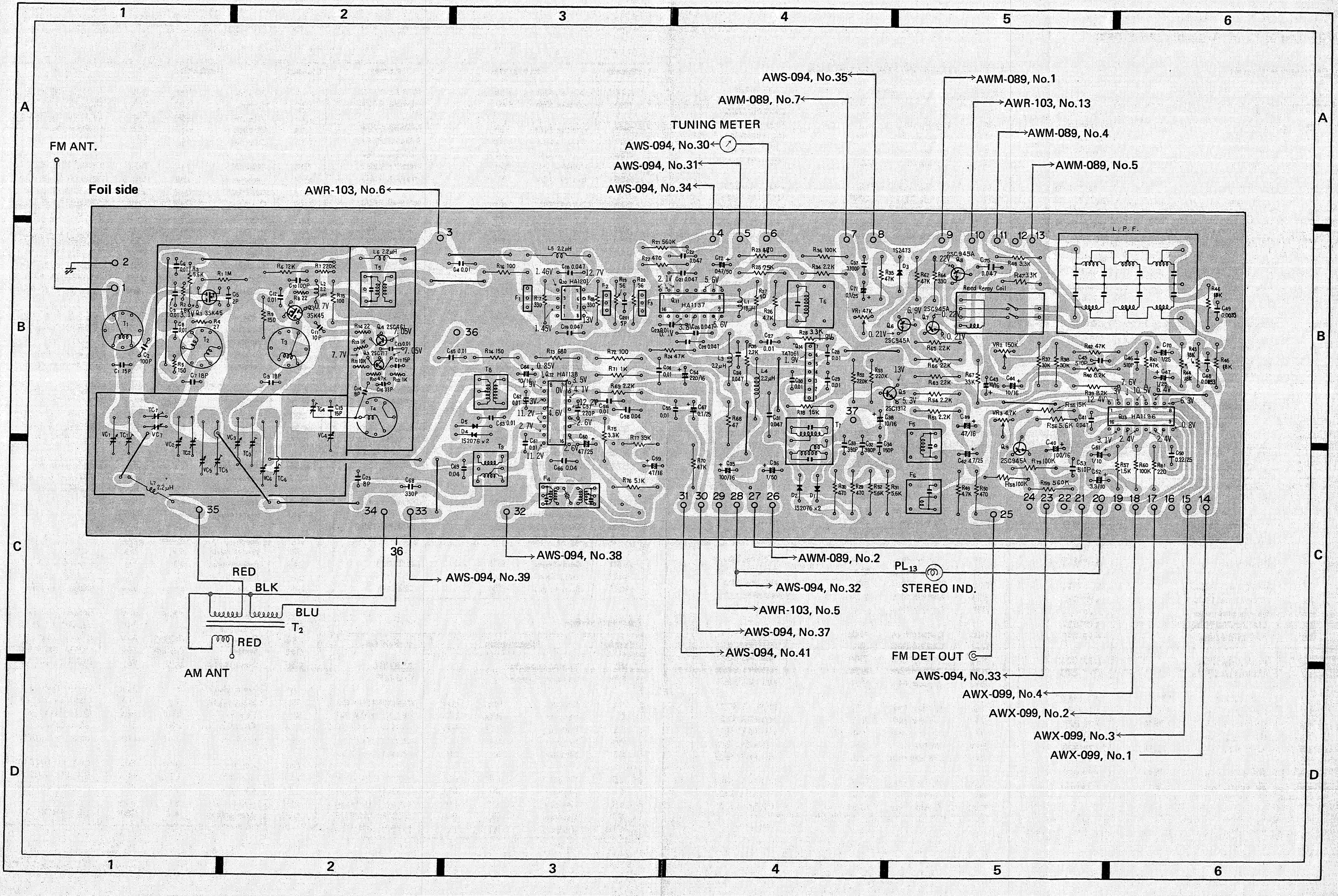
V (boxed)	SIGNAL VOLTAGE AT SPEAKER OUT 30.9V/8Ω (1KHz)
⇒	DC CURRENT AT NO INPUT SIGNAL
V	DC VOLTAGE AT NO INPUT SIGNAL

12.2 TUNER ASSEMBLY (AWE-067)



Total Current FM Position I_{typ} = 120mA
AM Position I_{typ} = 105mA

1
2
3
4
5
6
A
B
C
D
Q_1 3SK45
Q_2 3SK45
Q_{10} HA1201
Q_{11} HA1137
Q_{14} TA7061AP
$D_{1,2}$ 1S2076×2
Q_3 2SC717
Q_4 2SC461
Q_5 2SC1312
$Q_{6,7,8}$ 2SC945A×3
Q_9 2SC945A
Q_{12} HA1138
Q_{13} HA1196
D_3 1S2473
1S2076×2
IN 1
E 2
+B 13V 3
TO LOCAL +B
TO +B EXCEPT FM
T. MET
DISCRE OUT
+B 13V
MUT OUT
S. MET
MULT PATH
L OUT
E
R OUT
Reed Reray
Reed Reray Coil
F7 L.P.F.
AM LOCAL +B
E
ANT VC
AM IN
S.METER
AM OUT
MUT IN
+B 24V
FM DET OUT
VCO KILLER
AUTO IN
VCO. TP.
ST. INDICATOR


1
2
3
4
5
6
A
B
C
D
FM ANT.
Foil side
AWR-103, No.6
AWS-094, No.35
AWM-089, No.7
TUNING METER
AWS-094, No.30
AWS-094, No.31
AWS-094, No.34
AWM-089, No.1
AWR-103, No.13
AWM-089, No.4
AWM-089, No.5
L. P. F.
Reed Relay Coil
HA1201
HA1137
HA1138
TA7061
HA1196
2SC945A
2SC1312
3SK45
2SC461
2SC117
1S2473
1S2076 x 2
AWS-094, No.38
AWS-094, No.39
AWM-089, No.2
PL13
STEREO IND.
AWS-094, No.32
AWR-103, No.5
AWS-094, No.37
AWS-094, No.41
FM DET OUT
AWS-094, No.33
AWX-099, No.4
AWX-099, No.2
AWX-099, No.3
AWX-099, No.1
RED
BLK
BLU
T2
RED
AM ANT

Parts List of Tuner Assembly (AWE-067)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	FET	3SK45-B
Q2	FET	3SK45-B
Q3	Transistor	2SC717
Q4	Transistor	2SC461-B
Q5	Transistor	2SC1312-G
Q6	Transistor	2SC945A-Q
Q7	Transistor	2SC945A-Q
Q8	Transistor	2SC945A-Q
Q9	Transistor	2SC945A-Q
Q10	IC	HA1201
Q11	IC	HA1137
Q12	IC	HA1138
Q13	IC	HA1196
Q14	IC	TA7061AP
D1	Diode	1S2076
D2	Diode	1S2076
D3	Diode	1S2473
D4	Diode	1S2076
D5	Diode	1S2076

TRANSFORMERS, FILTERS AND COILS

Symbol	Description	Part No.
T1	FM antenna coil	ATC-021
T2	FM RF coil	ATC-015
T3	FM RF coil	ATC-016
T4	FM OSC coil	ATC-022
T5	FM IF transformer	ATE-008
T6	FM IF transformer	ATE-029
T7	FM IF transformer	ATE-013
T8	AM RF coil	ATB-014
T9	AM OSC coil	ATB-013
F1	FM ceramic filter	ATF-013
F2	FM ceramic filter	ATF-013
F3	FM ceramic filter	ATF-013
F4	AM ceramic filter	ATF-027
F5	Anti-birdy filter	ATF-023
F6	Anti-birdy filter	ATF-024
F7	FM low pass filter	ATF-028
L1	Choke coil 18μH	ATH-007
L2	RF choke coil 2.2μH	T24-028
L3	RF choke coil 2.2μH	T24-028
L4	RF choke coil 2.2μH	T24-028
L5	RF choke coil 2.2μH	T24-028
L6	RF choke coil 2.2μH	T24-028
L7	RF choke coil 2.2μH	T24-028

RESISTORS AND POTENTIOMETERS

Symbol	Description	Part No.
R1	Carbon film 1M	RD¼PS 105J
R2	Carbon film 1.8k	RD¼VS 182J
R3	Carbon film 5.6k	RD¼PS 562J
R4	Carbon film 27	RD¼VS 270J
R5	Carbon film 150	RD¼VS 151J
R6	Carbon film 12k	RD¼PS 123J
R7	Carbon film 220k	RD¼VS 224J
R8	Carbon film 22	RD¼VS 220J
R9	Carbon film 150	RD¼PS 151J
R10	Carbon film 4.7k	RD¼VS 472J
R11	Carbon film 10k	RD¼VS 103J
R12	Carbon film 1k	RD¼VS 102J
R13	Carbon film 1k	RD¼VS 102J
R14	Carbon film 22	RD¼VS 220J
R15	Carbon film 100	RD¼PS 101J
R16	Carbon film 100	RD¼PS 101J
R17	Carbon film 330	RD¼PS 331J
R18	Carbon film 330	RD¼PS 331J
R19	Carbon film 56	RD¼PS 560J
R20	Carbon film 56	RD¼PS 560J
R21	Carbon film 560k	RD¼PS 564J
R22	Carbon film 470	RD¼PS 471J
R23	Carbon film 470	RD¼PS 471J
R24	Carbon film 47k	RD¼PS 473J
R25	Carbon film 7.5k	RD¼PS 752J
R26	Carbon film 4.7k	RD¼PS 472J
R27	Carbon film 10	RD¼PS 100J
R28	Carbon film 3.3k	RD¼PS 332J
R29	Carbon film 470	RD¼PS 471J
R30	Carbon film 470	RD¼PS 471J
R31	Carbon film 5.6k	RD¼PS 562J
R32	Carbon film 5.6k	RD¼PS 562J
R33	Carbon film 2.2k	RD¼PS 222J
R34	Carbon film 2.2k	RD¼PS 222J
R35	Carbon film 47k	RD¼PS 473J
R36	Carbonffilm 100k	RD¼PS 104J
R37	Carbon film 30k	RD¼PS 303J
R38	Carbon film 30k	RD¼PS 303J
R39	Carbon film 8.2k	RD¼PS 822J
R40	Carbon film 8.2k	RD¼PS 822J
R41	Carbon film 47k	RD¼PS 473J
R42	Carbon film 47k	RD¼PS 473J
R43	Carbon film 1.8k	RD¼PS 182J
R44	Carbon film 1.8k	RD¼PS 182J
R45	Carbon film 1.8k	RD¼PS 182J
R46	Carbon film 1.8k	RD¼PS 182J
R47	Carbon film 3.3k	RD¼PS 332J
R48	Carbon film 3.3k	RD¼PS 332J
R49	Carbon film 4.7k	RD¼PS 472J
R50	Carbon film 470	RD¼PS 471J
R51	Carbon film 2.2k	RD¼PS 222J
R52	Carbon film 220k	RD¼PS 224J
R53	Carbon film 220k	RD¼PS 224J
R54	Carbon film 2.2k	RD¼PS 222J
R55	Carbon film 15k	RD¼PS 153J
R56	Carbon film 5.6k	RD¼PS 562J
R57	Carbon film 1.5k	RD¼PS 152J
R58	Carbon film 100k	RD¼PS 104J
R59	Carbon film 560k	RD¼PS 564J
R60	Carbon film 100k	RD¼PS 104J
R61	Carbon film 220	RD¼PS 221J
R62	Carbon film 47k	RD¼PS 473J
R63	Carbon film 22k	RD¼PS 223J
R64	Carbon film 330	RD¼PS 331J
R65	Carbon film 22k	RD¼PS 223J
R66	Carbon film 22k	RD¼PS 223J
R67	Carbon film 33k	RD¼PS 333J
R68	Carbon film 47	RD¼PS 470J
R69	Carbon film 2.2k	RD¼PS 222J
R70	Carbon film 47k	RD¼PS 473J
R71	Carbon film 1k	RD¼PS 102J
R72	Carbon film 100	RD¼PS 101J
R73	Carbon film 680	RD¼PS 681J
R74	Carbon film 150	RD¼PS 151J
R75	Carbon film 3.3k	RD¼PS 332J
R76	Carbon film 5.1k	RD¼PS 512J
R77	Carbon film 39k	RD¼PS 393J
R78	Carbon film 15k	RD¼PS 153J
R79	Carbon film 100k	RD¼PS 104J
VR1	Semi-fixed 4.7k	ACP-018
VR2	Semi-fixed 150k	ACP-014
VR3	Semi-fixed 47k	C92-048

CAPACITORS

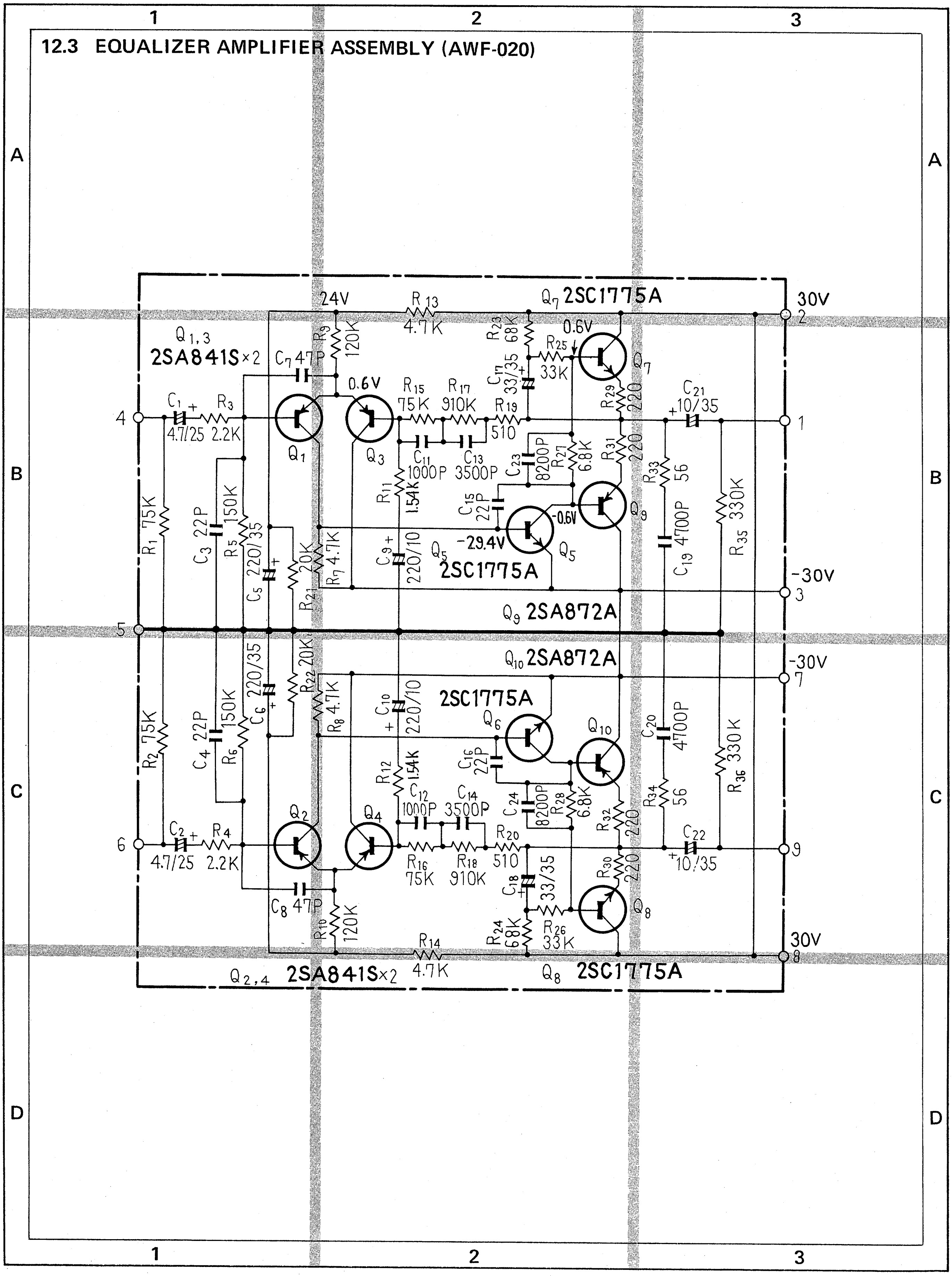
Symbol	Description	Part No.
VC	Tuning capacitor	ACK-016
TC4	Ceramic trimmer	C43-007
C1	Ceramic 15p 50V	CCDSH 150K 50
C2	Ceramic 100p 50V	CCDSL 101K 50
C3	Ceramic 0.01 50V	CKDYF 103Z 50
C4	Ceramic 0.01 50V	CKDYF 103Z 50
C5	Ceramic 2p 50V	CCDSL 020C 50
C6	Ceramic 0.01 50V	CKDYF 103Z 50
C7	Ceramic 18p 50V	CCDSH 180K 50
C8	Ceramic 0.01 50V	CKDYF 103Z 50
C9	Ceramic 18p 50V	CCDSH 180K 50
C10	Ceramic 100p 50V	CCDSL 101K 50
C11	Ceramic 10p 50V	CCDSL 100F 50
C12	Ceramic 0.01 50V	CKDYF 103Z 50
C13	Ceramic 0.01 50V	CKDYF 103Z 50
C14	Ceramic 8p 50V	CCDLH 080F 50
C15	Ceramic 15p 50V	CCDLH 150K 50
C16	Ceramic 33p 50V	CCDCH 330K 50
C17	Ceramic 15p 50V	CCDCH 150K 50
C18	Ceramic 0.047 25V	CKDBC 473Z 25
C19	Ceramic 0.047 25V	CKDBC 473Z 25
C20	Ceramic 15p 50V	CCDSL 150K 50
C21	Ceramic 0.047 25V	CKDBC 473Z 25
C22	Ceramic 0.047 25V	CKDBC 473Z 25
C23	Ceramic 0.01 50V	CKDYF 103Z 50
C24	Ceramic 0.047 25V	CKDBC 473Z 25
C25	Ceramic 0.047 25V	CKDBC 473Z 25
C26	Ceramic 0.047 25V	CKDBC 473Z 25
C27	Ceramic 0.01 50V	CKDYF 103Z 50
C28	Ceramic 0.01 50V	CKDYF 103Z 50
C29	Ceramic 0.01 50V	CKDYF 103Z 50
C30	Ceramic 0.01 50V	CKDYF 103Z 50
C31	Ceramic 0.047 25V	CKDBC 473Z 25
C32	Ceramic 390p 50V	CCDSL 391K 50
C33	Ceramic 390p 50V	CCDSL 391K 50
C34	Ceramic 150p 50V	CCDSL 151K 50
C35	Electrolytic 100 16V	CEA 101P 16
C36	Electrolytic 1 50V	CEA 010P 50
C37	Ceramic 3300p 50V	CKDYA 332J 50
C38	Electrolytic 10 16V	CEANL 100P 16
C39	Electrolytic 47 16V	CEANL 470P 16
C40	Electrolytic 100 16V	CEA 101P 16
C41	Mylar 0.047 50V	CQMA 473J 50
C42	Electrolytic 4.7 25V	CEANL 4R7P 25
C43	Electrolytic 10 16V	CEANL 100P 16
C44	Electrolytic 10 16V	CEANL 100P 16
C45	Styrol 510p 50V	CQSA 511J 50
C46	Styrol 510p 50V	CQSA 511J 50
C47	Electrolytic 1 25V	CEANL 010P 25
C48	Mylar 0.0033 50V	CQMA 332K 50
C49	Mylar 0.0033 50V	CQMA 332K 50
C50	Electrolytic 0.22 25V	CSSA R22M 25
C51	Electrolytic 1 10V	CSSA 010M 10
C52	Electrolytic 3.3 10V	CSSA 3R3M 10
C53	Styrol 510p 50V	CQSH 511J 50
C54	Electrolytic 220 16V	CEA 221P 16
C55	Ceramic 0.01 50V	CKDYF 103Z 50
C56	Ceramic 0.01 50V	CKDYF 103Z 50
C57	Ceramic 220p 50V	CCDSL 221K 50
C58	Ceramic 0.04 50V	CKDYF 403Z 50
C59	Electrolytic 47 16V	CEA 470P 16
C60	Electrolytic 4.7 25V	CEA 4R7P 25

Symbol	Description			Part No.
C61	Ceramic	0.01	50V	CDKYA 103J 50
C62	Ceramic	0.01	50V	CKDYF 103Z 50
C63	Ceramic	0.01	50V	CKDYF 103Z 50
C64	Electrolytic	10	16V	CEA 100P 16
C65	Ceramic	0.01	50V	CKDYF 103Z 50
C66	Ceramic	0.04	50V	CKDYF 403Z 50
C67	Electrolytic	0.1	25V	CSSA 0R1M 25
C68	Styrol	330p	50V	CQSA 331J 50
C69	Ceramic	0.04	50V	CKDYF 403Z 50
C70	Electrolytic	1	25V	CEANL 010P 25
C71	Electrolytic	0.1	25V	CSSA 0R1M 25
C72	Electrolytic	0.47	50V	CEA R47P 50
C73	Ceramic	8p	50V	CCDXL 080F 50
C74	Ceramic	0.01	50V	CKDYF 103Z 50
C75	Ceramic	0.047	25V	CKDBC 473Z 25

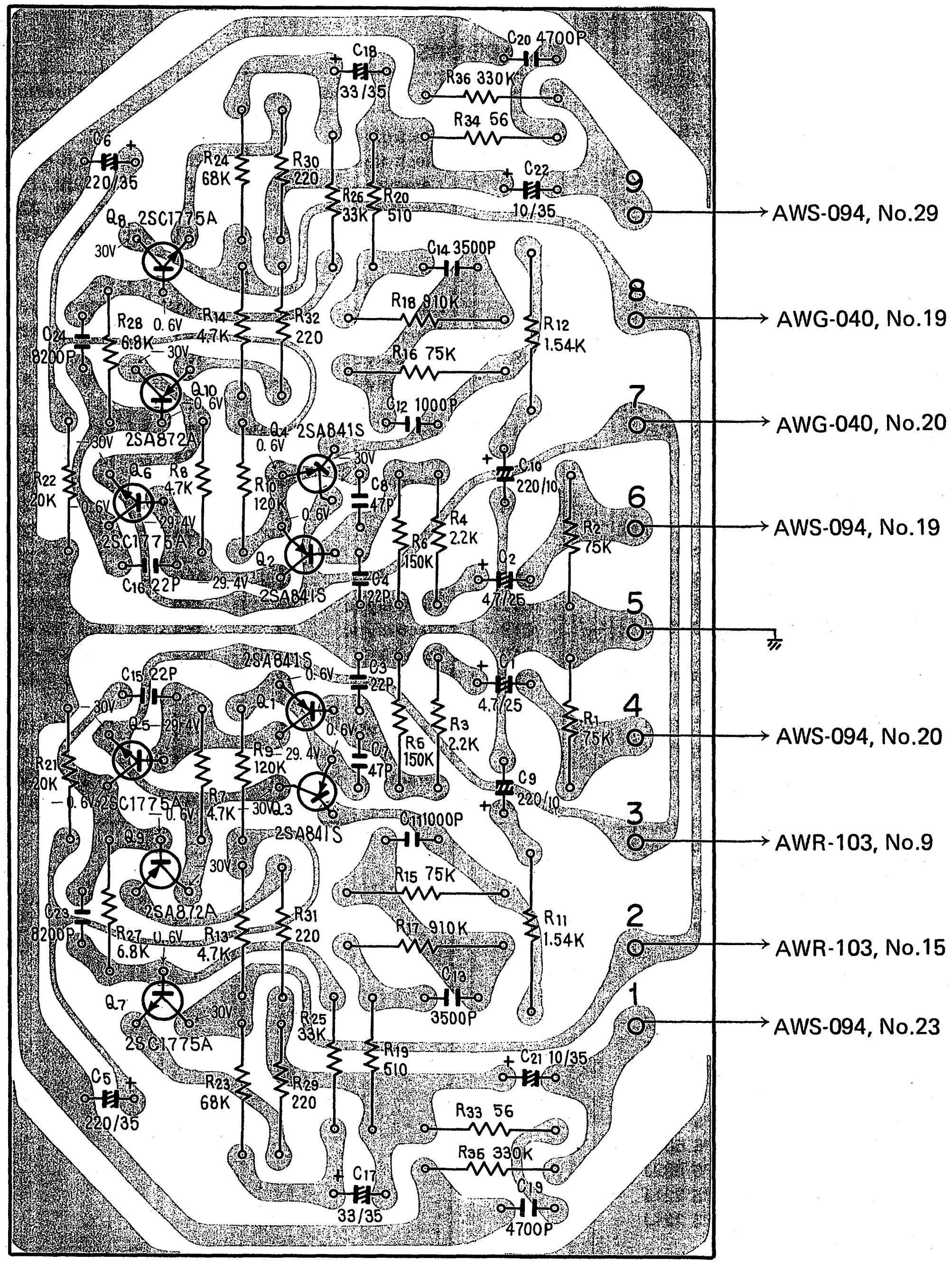
OTHER

Symbol	Description	Part No.
	Reed relay	ASR-005

12.3 EQUALIZER AMPLIFIER ASSEMBLY (AWF-020)


1
2
3
A
B
C
D
24V
R13 4.7K
Q7 2SC1775A
30V
2
Q1,3
2SA841S×2
C7 47P
R9 120K
0.6V
R23 68K
0.6V
R25 33K
C17 33/35
Q7
R29 220
C21 10/35
4
C1 4.7/25
R3 2.2K
Q1
Q3
R15 75K
R17 910K
R19 510
C11 1000P
C13 3500P
C23 8200P
R27 6.8K
R31 220
R33 56
1
R11 1.54K
C15 22P
-0.6V
Q9
R35 330K
C19 4700P
R1 75K
C3 22P
R5 150K
C5 220/35
R21 20K
R7 4.7K
C9 220/10
Q5
-29.4V
Q5
2SC1775A
-30V
3
Q9 2SA872A
5
Q10 2SA872A
-30V
7
R2 75K
C4 22P
R6 150K
C6 220/35
R22 20K
R8 4.7K
C10 220/10
2SC1775A
Q6
Q10
C20 4700P
R36 330K
R12 1.54K
C16 22P
C12 1000P
C14 3500P
C24 8200P
R28 6.8K
R34 56
R32 220
6
C2 4.7/25
R4 2.2K
Q2
Q4
R16 75K
R18 910K
R20 510
C22 10/35
9
C8 47P
C18 33/35
R30 220
Q8
R10 120K
R24 68K
R26 33K
R14 4.7K
30V
8
Q2,4 2SA841S×2
Q8 2SC1775A

Foil side


C20 4700P
C18 33/35
R36 330K
R34 56
C6 220/35
R24 68K
R30 220
C22 10/35
R26 33K
R20 510
Q8 2SC1775A
30V
C14 3500P
R18 910K
R28 6.8K
0.6V
R14 4.7K
R32 220
C24 8200P
R12 1.54K
R16 75K
Q10 2SA872A
C12 1000P
Q4 2SA841S
R22 20K
Q6 2SC1775A
R8 4.7K
R10 120K
C8 47P
C10 220/10
R6 150K
R4 2.2K
R2 75K
Q2 2SA841S
C16 22P
C4 22P
C2 4.7/25
29.4V
C15 22P
Q1 2SA841S
C3 22P
C1 4.7/25
Q5 2SC1775A
R9 120K
R5 150K
R3 2.2K
R1 75K
R21 20K
R7 4.7K
Q3 2SA841S
C7 47P
C9 220/10
C11 1000P
Q9 2SA872A
R15 75K
R11 1.54K
C23 8200P
R27 6.8K
R13 4.7K
R31 220
R17 910K
C13 3500P
Q7 2SC1775A
R25 33K
R19 510
C21 10/35
C5 220/35
R23 68K
R29 220
R33 56
R35 330K
C17 33/35
C19 4700P
9
AWS-094, No.29
8
AWG-040, No.19
7
AWG-040, No.20
6
AWS-094, No.19
5
4
AWS-094, No.20
3
AWR-103, No.9
2
AWR-103, No.15
1
AWS-094, No.23

Parts List of Equalizer Amplifier Assembly (AWF-020)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SA841S-BL
Q2	Transistor	2SA841S-BL
Q3	Transistor	2SA841S-BL
Q4	Transistor	2SA841S-BL
Q5	Transistor	2SC1775A-E
Q6	Transistor	2SC1775A-E
Q7	Transistor	2SC1775A-E
Q8	Transistor	2SC1775A-E
Q9	Transistor	2SA872A-E
Q10	Transistor	2SA872A-E

RESISTORS

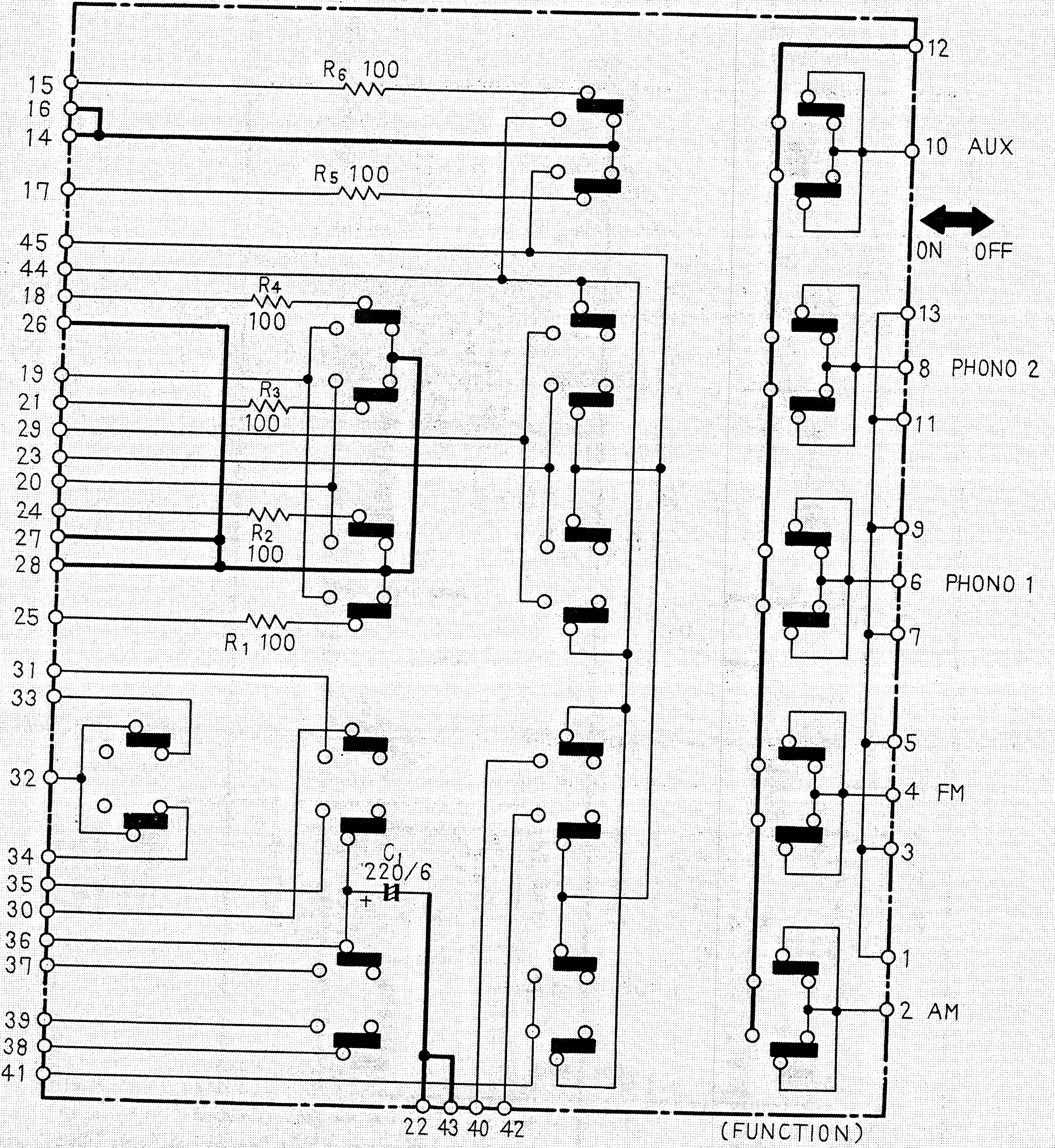
Symbol	Description			Part No.
R1	Carbon film	75k		RD¼PS 753JNL
R2	Carbon film	75k		RD¼PS 753JNL
R3	Carbon film	2.2k		RD¼PS 222J
R4	Carbon film	2.2k		RD¼PS 222J
R5	Carbon film	150k		RD¼PS 154JNL
R6	Carbon film	150k		RD¼PS 154JNL
R7	Carbon film	4.7k		RD¼PS 472J
R8	Carbon film	4.7k		RD¼PS 472J
R9	Carbon film	120k		RD¼PS 124J
R10	Carbon film	120k		RD¼PS 124J
R11	Metal film	1.54k	½W	RN½SR 1541F
R12	Metal film	1.54k	½W	RN½SR 1541F
R13	Carbon film	4.7k		RD¼PS 472J
R14	Carbon film	4.7k		RD¼PS 472J
R15	Metal film	75k	½W	RN½SR 7502F
R16	Metal film	75k	½W	RN½SR 7502F
R17	Metal film	910k	½W	RN½SR 9103F
R18	Metal film	910k	½W	RN½SR 9103F
R19	Carbon film	510		RD¼PS 511J
R20	Carbon film	510		RD¼PS 511J
R21	Carbon film	20k		RD¼PS 203J
R22	Carbon film	20k		RD¼PS 203J
R23	Carbon film	68k		RD¼PS 683J
R24	Carbon film	68k		RD¼PS 683J
R25	Carbon film	33k		RD¼PS 333J
R26	Carbon film	33k		RD¼PS 333J
R27	Carbon film	6.8k		RD¼PS 682J
R28	Carbon film	6.8k		RD¼PS 682J
R29	Carbon film	220		RD¼PS 221J
R30	Carbon film	220		RD¼PS 221J
R31	Carbon film	220		RD¼PS 221J
R32	Carbon film	220		RD¼PS 221J
R33	Carbon film	56		RD¼PS 560J
R34	Carbon film	56		RD¼PS 560J
R35	Carbon film	330k		RD¼PS 334J

Symbol	Description		Part No.
R36	Carbon film	330k	RD¼PS 334J

CAPACITORS

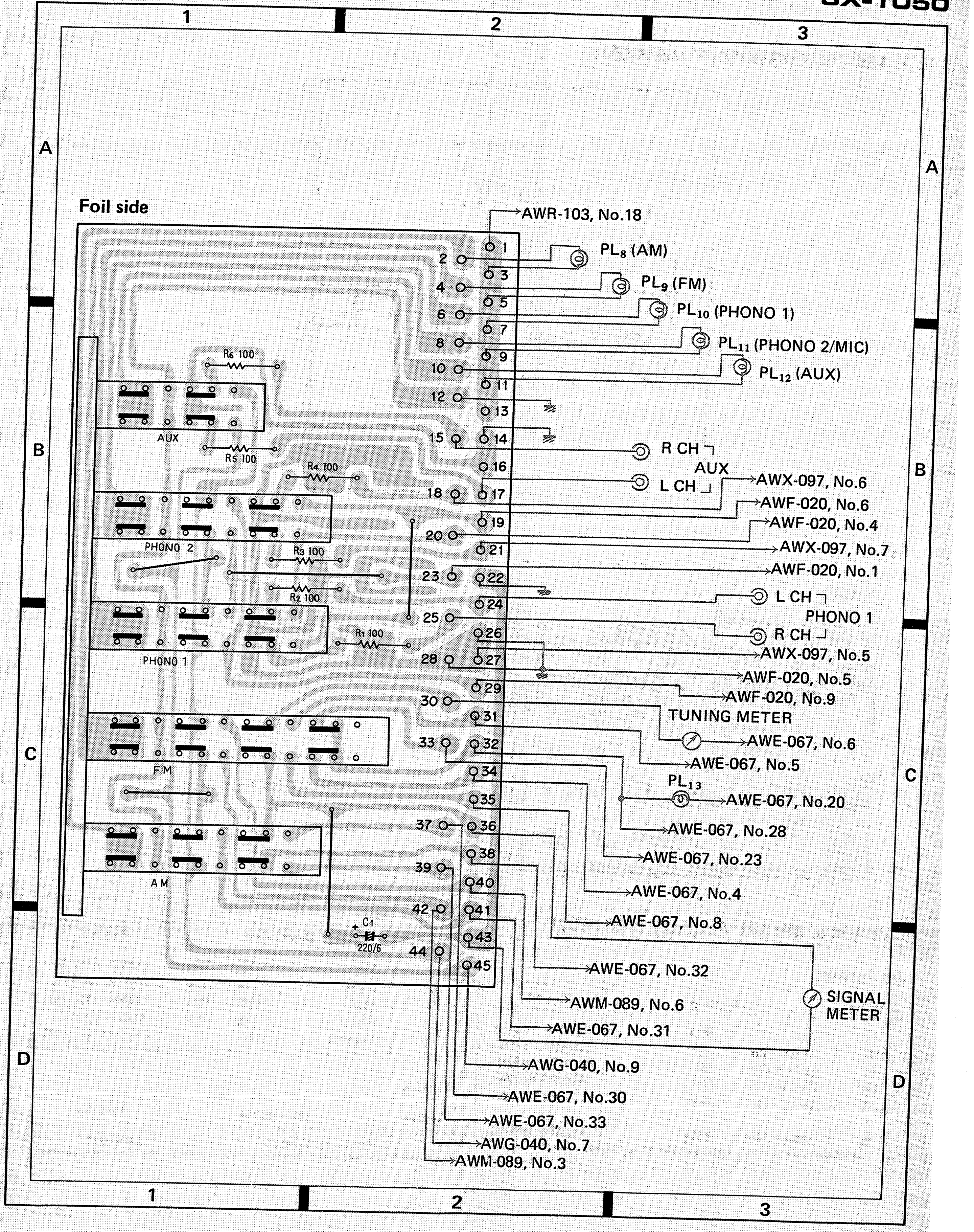
Symbol	Description			Part No.
C1	Electrolytic	4.7	25V	CSZA 4R7M 25
C2	Electrolytic	4.7	25V	CSZA 4R7M 25
C3	Ceramic	22p	50V	CCDSL 220K 50
C4	Ceramic	22p	50V	CCDSL 220K 50
C5	Electrolytic	220	35V	CEA 221P 35
C6	Electrolytic	220	35V	CEA 221P 35
C7	Ceramic	47p	50V	CCDSL 470K 50
C8	Ceramic	47p	50V	CCDSL 470K 50
C9	Electrolytic	220	10V	CEA 221P 10
C10	Electrolytic	220	10V	CEA 221P 10
C11	Styrol	1000p	50V	CQSA 102G 50
C12	Styrol	1000p	50V	CQSA 102G 50
C13	Styrol	3500p	50V	CQSA 352G 50
C14	Styrol	3500p	50V	CQSA 352G 50
C15	Ceramic	22p	50V	CCDSL 220K 50
C16	Ceramic	22p	50V	CCDSL 220K 50
C17	Electrolytic	33	35V	CEA 330P 35
C18	Electrolytic	33	35V	CEA 330P 35
C19	Ceramic	4700p	50V	CKDYF 472K 50
C20	Ceramic	4700p	50V	CKDYF 472K 50
C21	Electrolytic	10	35V	CEANL 100P 35
C22	Electrolytic	10	35V	CEANL 100P 35
C23	Ceramic	8200p	50V	CKDYF 822K 50
C24	Ceramic	8200p	50V	CKDYF 822K 50

12.4 FUNCTION SWITCH ASSEMBLY (AWS-094)

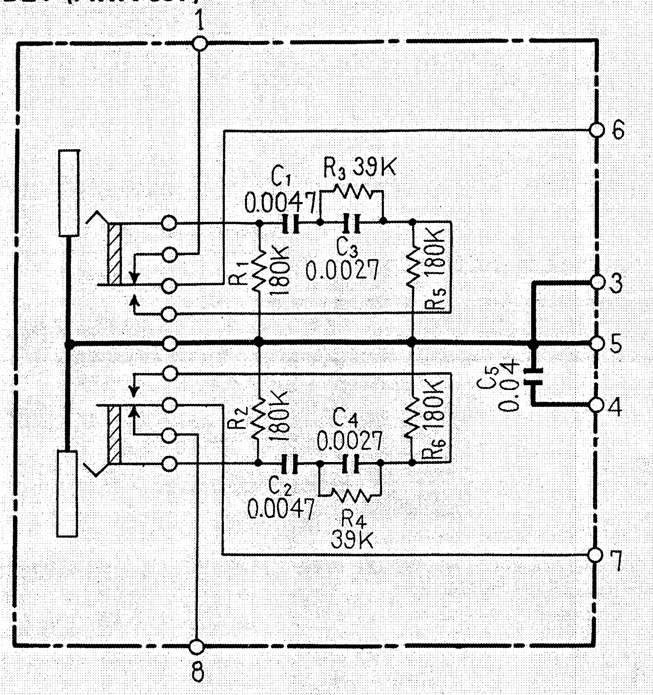

R6 100
R5 100
R4 100
R3 100
R2 100
R1 100
C1 220/6
15
16
14
17
45
44
18
26
19
21
29
23
20
24
27
28
25
31
33
32
34
35
30
36
37
39
38
41
12
10 AUX
ON OFF
13
8 PHONO 2
11
9
6 PHONO 1
7
5
4 FM
3
1
2 AM
22 43 40 42
(FUNCTION)

Parts List of Function Switch Assembly (AWS-094)

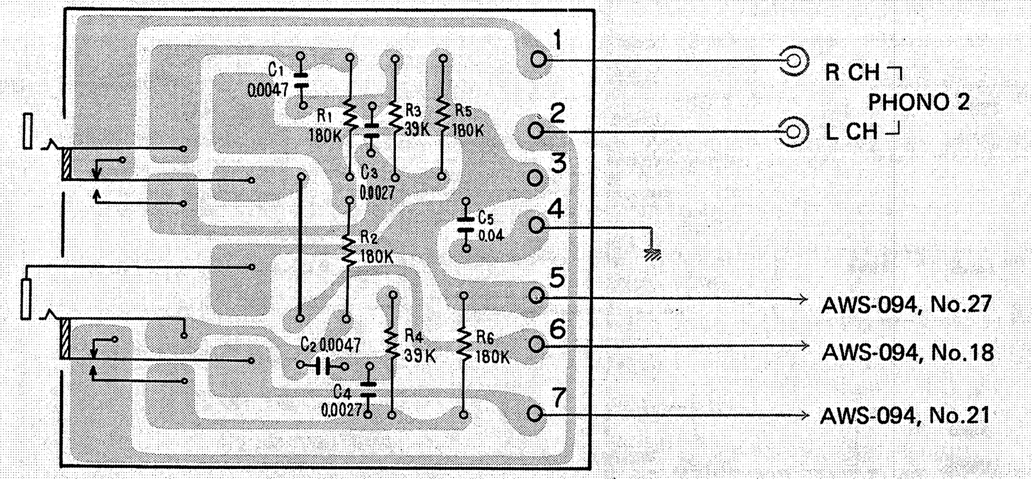
Symbol	Description	Part No.
S1	Push switch (FUNCTION)	ASG-095
R1	Carbon film resistor 100	RD¼PS 101J
R2	Carbon film resistor 100	RD¼PS 101J
R3	Carbon film resistor 100	RD¼PS 101J
R4	Carbon film resistor 100	RD¼PS 101J
R5	Carbon film resistor 100	RD¼PS 101J
R6	Carbon film resistor 100	RD¼PS 101J
C1	Electrolytic capacitor 220 6V	CEA 221P 6


1
2
3
A
B
C
D
Foil side
AWR-103, No.18
PL8 (AM)
PL9 (FM)
PL10 (PHONO 1)
PL11 (PHONO 2/MIC)
PL12 (AUX)
R CH
AUX
L CH
AWX-097, No.6
AWF-020, No.6
AWF-020, No.4
AWX-097, No.7
AWF-020, No.1
L CH
PHONO 1
R CH
AWX-097, No.5
AWF-020, No.5
AWF-020, No.9
TUNING METER
AWE-067, No.6
AWE-067, No.5
PL13
AWE-067, No.20
AWE-067, No.28
AWE-067, No.23
AWE-067, No.4
AWE-067, No.8
AWE-067, No.32
AWM-089, No.6
SIGNAL METER
AWE-067, No.31
AWG-040, No.9
AWE-067, No.30
AWE-067, No.33
AWG-040, No.7
AWM-089, No.3
R6 100
R5 100
R4 100
R3 100
R2 100
R1 100
C1 220/6
AUX
PHONO 2
PHONO 1
FM
AM
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

12.5 MIC JACK ASSEMBLY (AWX-097)


1
6
C1 0.0047
R3 39K
C3 0.0027
R1 180K
R5 180K
3
5
C5 0.04
4
R2 180K
C4 0.0027
R6 180K
C2 0.0047
R4 39K
7
8

Foil side


1
2
3
4
5
6
7
C1 0.0047
R1 180K
R3 39K
R5 180K
C3 0.0027
C5 0.04
R2 180K
C2 0.0047
R4 39K
R6 180K
C4 0.0027
R CH
PHONO 2
L CH
AWS-094, No.27
AWS-094, No.18
AWS-094, No.21

Parts List of Mic jack Assembly (AWX-097)

RESISTORS

Symbol	Description		Part No.
R1	Carbon film	180k	RD¼PS 184JNL
R2	Carbon film	180k	RD¼PS 184JNL
R3	Carbon film	39k	RD¼PS 393JNL
R4	Carbon film	39k	RD¼PS 393JNL
R5	Carbon film	180k	RD¼PS 184JNL
R6	Carbon film	180k	RD¼PS 184JNL

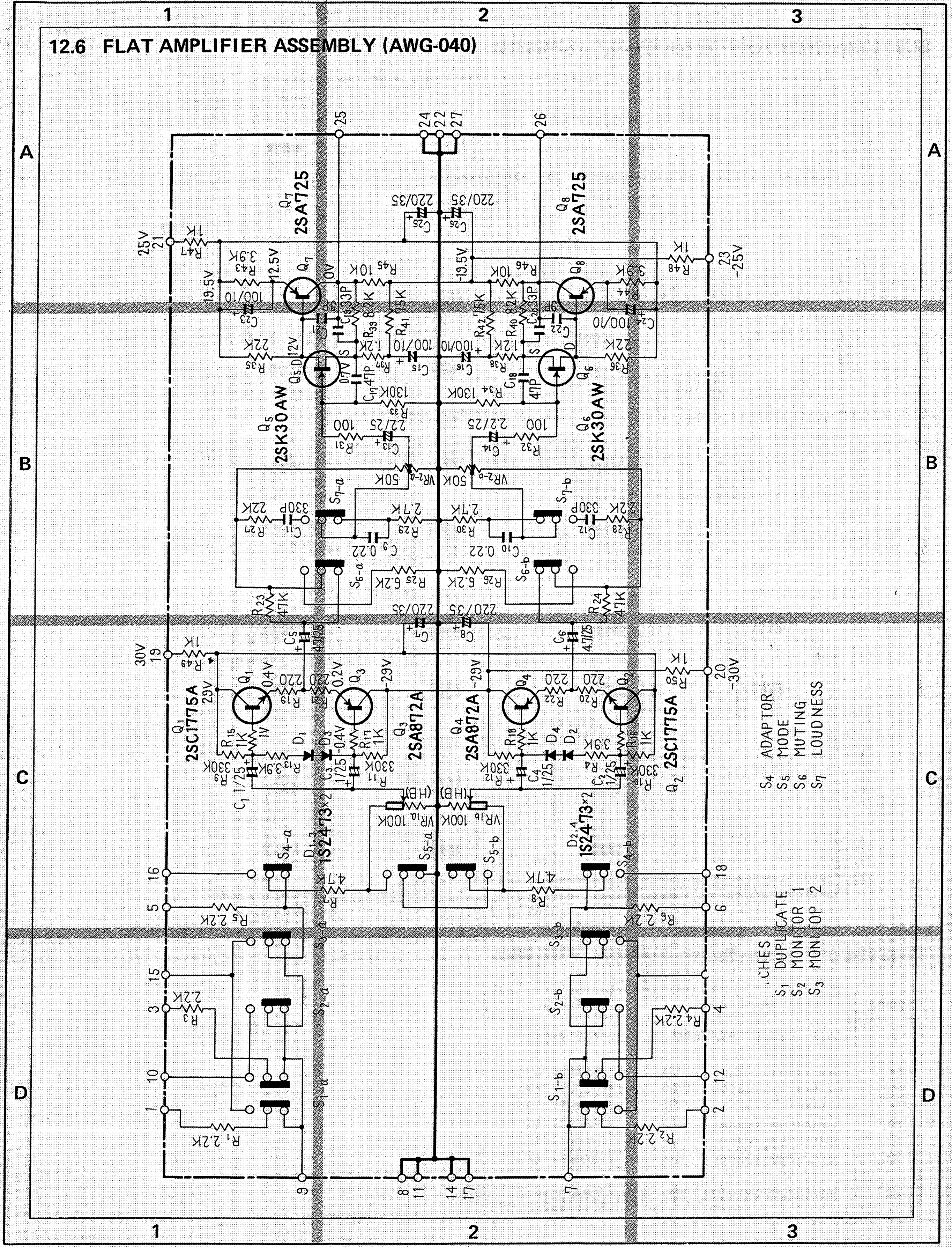
CAPACITORS

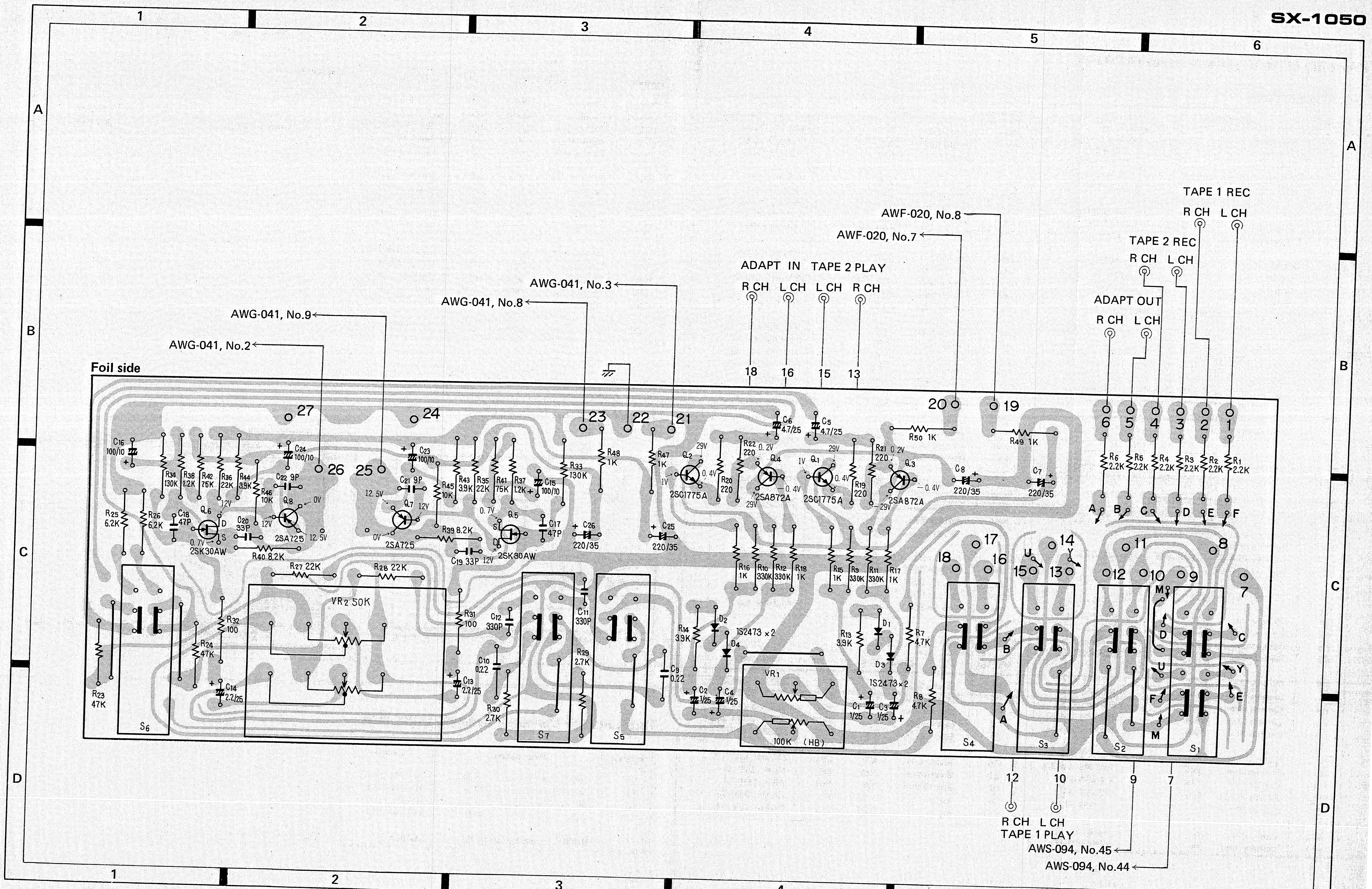
Symbol	Description			Part No.
C1	Mylar	4700p	50V	CQMA 472J 50
C2	Mylar	4700p	50V	CQMA 472J 50
C3	Mylar	2700p	50V	CQMA 272J 50
C4	Mylar	2700p	50V	CQMA 272J 50
C5	Ceramic	0.04		CKDYF 403Z 50

OTHER

Symbol	Description	Part No.
	Phone jack (MIC)	AKN-013

12.6 FLAT AMPLIFIER ASSEMBLY (AWG-040)


1
2
3
A
B
C
D
25
24
22
27
26
21
25V
23
-25V
19
30V
20
-30V
16
5
15
3
10
1
18
6
4
12
2
9
8
11
14
17
7
Q7 2SA725
Q8 2SA725
Q5 2SK30AW
Q6 2SK30AW
Q1 2SC1775A
Q2 2SC1775A
Q3 2SA872A
Q4 2SA872A
D1,3 1S2473×2
D2,4 1S2473×2
VR1a 100K
VR1b 100K
VR2-a 50K
VR2-b 50K
S4 ADAPTOR
S5 MODE
S6 MUTING
S7 LOUDNESS
S1 DUPLICATE
S2 MONITOR 1
S3 MONITOR 2


Foil side
TAPE 1 REC
R CH
L CH
TAPE 2 REC
R CH
L CH
ADAPT OUT
R CH
L CH
ADAPT IN
TAPE 2 PLAY
R CH
L CH
L CH
R CH
AWF-020, No.8
AWF-020, No.7
AWG-041, No.3
AWG-041, No.8
AWG-041, No.9
AWG-041, No.2
18
16
15
13
20
19
6
5
4
3
2
1
27
24
23
22
21
26
25
R50 1K
R49 1K
R6 2.2K
R5 2.2K
R4 2.2K
R3 2.2K
R2 2.2K
R1 2.2K
C6 4.7/25
C5 4.7/25
C8 220/35
C7 220/35
Q2
Q4
Q1
Q3
2SC1775A
2SA872A
2SC1775A
2SA872A
R47 1K
R48 1K
R22 220
R20 220
R19 220
R21 220
C16 100/10
R34 130K
R38 1.2K
R42 75K
R36 22K
R44 3.9K
R46 10K
C24 100/10
C22 9P
C23 100/10
C21 9P
R45 10K
R43 3.9K
R35 22K
R41 75K
R37 1.2K
C15 100/10
R33 130K
C17 47P
R25 6.2K
R26 6.2K
C18 47P
C20 33P
Q6
Q8
Q7
Q5
2SK30AW
2SA725
2SA725
2SK30AW
R40 8.2K
R39 8.2K
C19 33P
C26 220/35
C25 220/35
R27 22K
R28 22K
VR2 50K
R16 1K
R10 330K
R12 330K
R18 1K
R15 1K
R9 330K
R11 330K
R17 1K
R32 100
R24 47K
R23 47K
C14 2.2/25
R31 100
C12 330P
C11 330P
C10 0.22
C13 2.2/25
R30 2.7K
R29 2.7K
C9 0.22
R14 33K
D2
D4
1S2473 × 2
C2 1/25
C4 1/25
VR1
100K (HB)
R13 3.9K
D1
D3
1S2473 × 2
C1 1/25
C3 1/25
R7 4.7K
R8 4.7K
A
B
C
D
E
F
17
14
16
15
13
11
8
12
10
9
7
U
Y
M
S6
S7
S5
S4
S3
S2
S1
12
10
9
7
R CH
L CH
TAPE 1 PLAY
AWS-094, No.45
AWS-094, No.44
1
2
3
4
5
6
A
B
C
D

Parts List of Flat Amplifier Assembly (AWG-040)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SC1775A-E
Q2	Transistor	2SC1775A-E
Q3	Transistor	2SA872A-E
Q4	Transistor	2SA872A-E
Q5	FET	2SK30AW-Y
Q6	FET	2SK30AW-Y
Q7	Transistor	2SA725-G
Q8	Transistor	2SA725-G
D1	Diode	1S2473
D2	Diode	1S2473
D3	Diode	1S2473
D4	Diode	1S2473

SWITCHES

Symbol	Description	Part No.
S1	Lever switch (DUPLICATE)	ASK-092-0
S2	Lever switch (TAPE MONITOR 1)	ASK-090-0
S3	Lever switch (TAPE MONITOR 2)	ASK-090-0
S4	Lever switch (ADAPTOR)	ASK-090-0
S5	Lever switch (MODE)	ASK-090-0
S6	Lever switch (MUTING)	ASK-090-0
S7	Lever switch (LOUDNESS)	ASK-090-0

RESISTORS AND POTENTIOMETERS

Symbol	Description	Part No.
VR1	Variable resistor (BALANCE) 100k-HB	ACV-163
VR2	Variable resistor (VOLUME) 50k	ACV-169
R1	Carbon film 2.2k	RD¼PS 222J
R2	Carbon film 2.2k	RD¼PS 222J
R3	Carbon film 2.2k	RD¼PS 222J
R4	Carbon film 2.2k	RD¼PS 222J
R5	Carbon film 2.2k	RD¼PS 222J
R6	Carbon film 2.2k	RD¼PS 222J
R7	Carbon film 4.7k	RD¼PS 472J
R8	Carbon film 4.7k	RD¼PS 472J
R9	Carbon film 330k	RD¼PS 334JNL
R10	Carbon film 330k	RD¼PS 334JNL
R11	Carbon film 330k	RD¼PS 334JNL
R12	Carbon film 330k	RD¼PS 334JNL
R13	Carbon film 3.9k	RD¼PS 392J
R14	Carbon film 3.9k	RD¼PS 392J
R15	Carbon film 1k	RD¼PS 102J
R16	Carbon film 1k	RD¼PS 102J
R17	Carbon film 1k	RD¼PS 102J
R18	Carbon film 1k	RD¼PS 102J
R19	Carbon film 220	RD¼PS 221J
R20	Carbon film 220	RD¼PS 221J
R21	Carbon film 220	RD¼PS 221J
R22	Carbon film 220	RD¼PS 221J
R23	Carbon film 47k	RD¼PS 473J
R24	Carbon film 47k	RD¼PS 473J
R25	Carbon film 6.2k	RD¼PS 622J
R26	Carbon film 6.2k	RD¼PS 622J
R27	Carbon film 22k	RD¼PS 223J
R28	Carbon film 22k	RD¼PS 223J
R29	Carbon film 2.7k	RD¼PS 272J
R30	Carbon film 2.7k	RD¼PS 272J
R31	Carbon film 100	RD¼PS 101J
R32	Carbon film 100	RD¼PS 101J
R33	Carbon film 130k	RD¼PS 134JNL
R34	Carbon film 130k	RD¼PS 134JNL
R35	Carbon film 22k	RD¼PS 223J
R36	Carbon film 22k	RD¼PS 223J
R37	Carbon film 1.2k	RD¼PS 122J
R38	Carbon film 1.2k	RD¼PS 122J
R39	Carbon film 8.2k	RD¼PS 822J
R40	Carbon film 8.2k	RD¼PS 822J
R41	Carbon film 75k	RD¼PS 753J
R42	Carbon film 75k	RD¼PS 753J
R43	Carbon film 3.9k	RD¼PS 392J
R44	Carbon film 3.9k	RD¼PS 392J
R45	Carbon film 10k	RD¼PS 103J
R46	Carbon film 10k	RD¼PS 103J
R47	Carbon film 1k	RD¼PS 102J
R48	Carbon film 1k	RD¼PS 102J
R49	Carbon film 1k	RD¼PS 102J
R50	Carbon film 1k	RD¼PS 102J

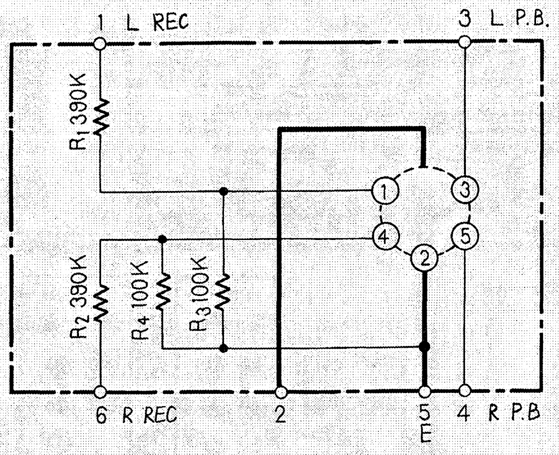
CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 1 25V	CSZA 010M 25
C2	Electrolytic 1 25V	CSZA 010M 25
C3	Electrolytic 1 25V	CSZA 010M 25
C4	Electrolytic 1 25V	CSZA 010M 25
C5	Electrolytic 4.7 25V	CEANL 4R7P 25
C6	Electrolytic 4.7 25V	CEANL 4R7P 25
C7	Electrolytic 220 35V	CEA 221P 35
C8	Electrolytic 220 35V	CEA 221P 35
C9	Mylar 0.24 50V	CQMA 224J 50
C10	Mylar 0.24 50V	CQMA 224J 50
C11	Ceramic 330p 50V	CKDYB 331K 50
C12	Ceramic 330p 50V	CKDYB 331K 50
C13	Electrolytic 2.2 25V	CSZA 2R2M 25
C14	Electrolytic 2.2 25V	CSZA 2R2M 25
C15	Electrolytic 100 10V	CEANL 101P 10
C16	Electrolytic 100 10V	CEANL 101P 10
C17	Ceramic 47p 50V	CCDSL 470K 50
C18	Ceramic 47p 50V	CCDSL 470K 50
C19	Ceramic 33p 50V	CCDSL 330K 50
C20	Ceramic 33p 50V	CCDSL 330K 50
C21	Ceramic 9p 50V	CCDSL 090F 50
C22	Ceramic 9p 50V	CCDSL 090F 50
C23	Electrolytic 100 10V	CEANL 101P 10
C24	Electrolytic 100 10V	CEANL 101P 10
C25	Electrolytic 220 35V	CEA 221P 35
C26	Electrolytic 220 35V	CEA 221P 35

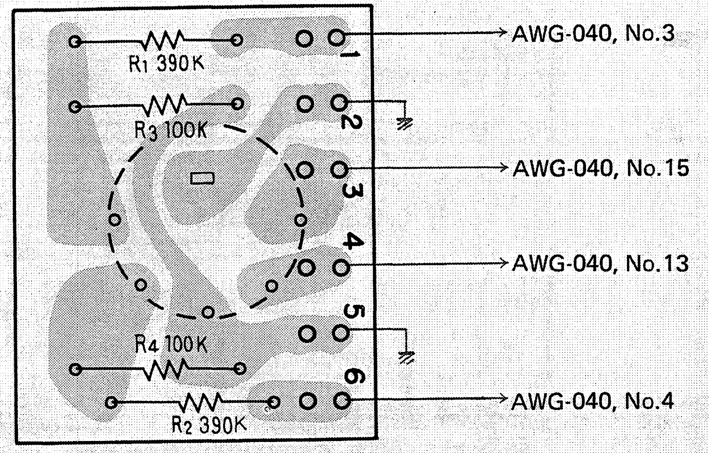
OTHERS

Symbol	Description	Part No.
	Union nut	ABN-021
	Washer faced nut	ABN-024

12.7 5P CONNECTOR ASSEMBLY (AWX-062)



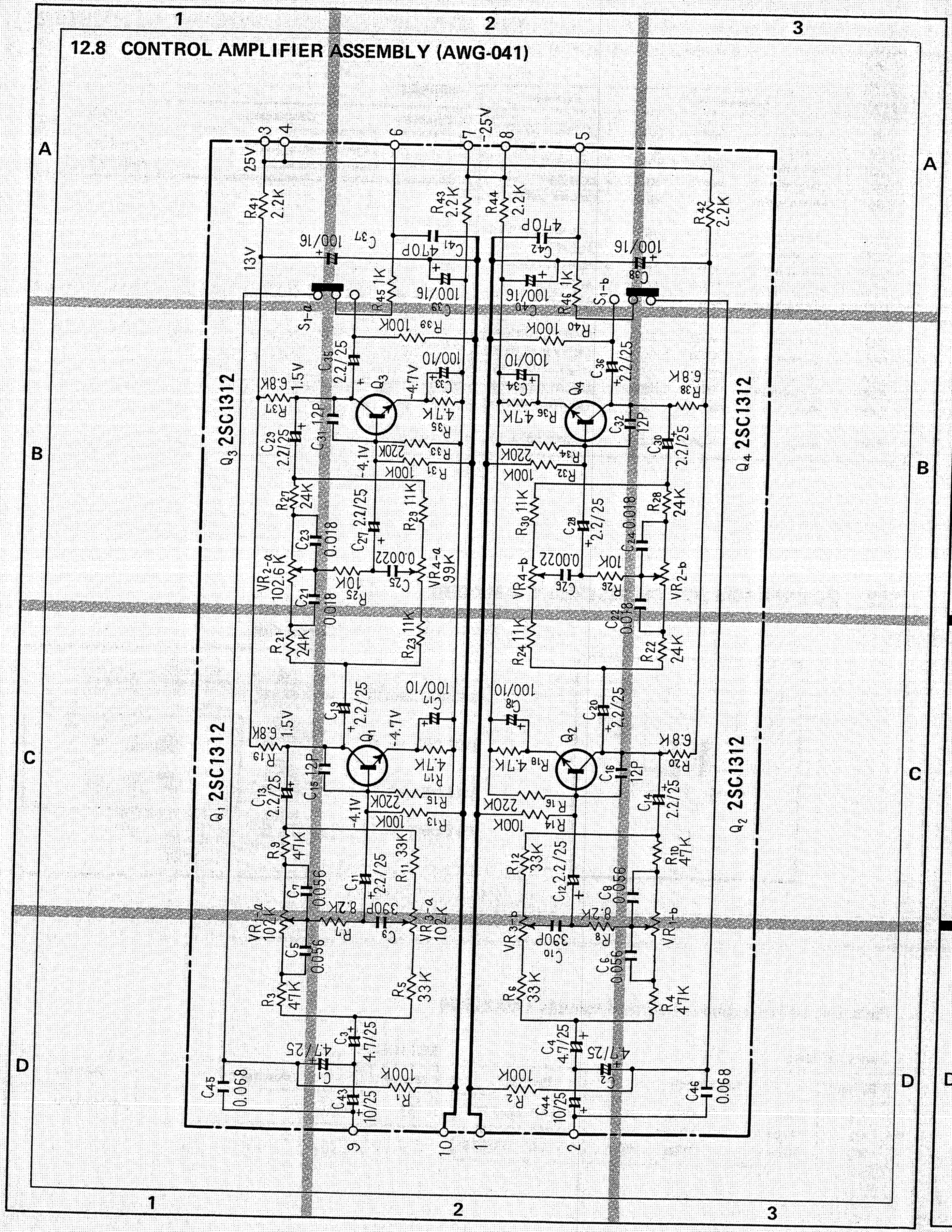
Foil side

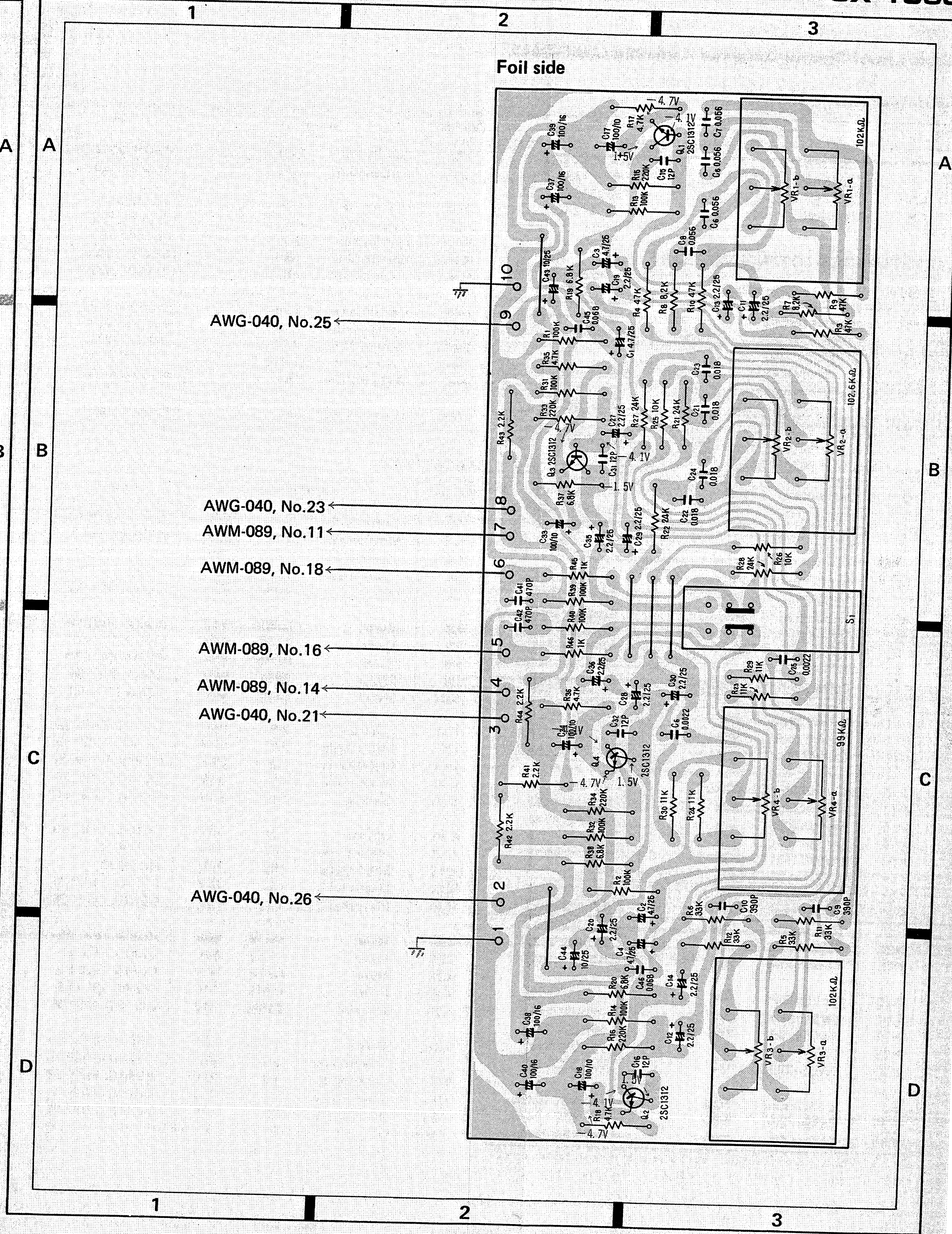


Parts List of 5P Connector Assembly (AWX-062)

Symbol	Description	Part No.
R1	Carbon film resistor 390k	RD¼PS 394J
R2	Carbon film resistor 390k	RD¼PS 394J
R3	Carbon film resistor 100k	RD¼PS 104J
R4	Carbon film resistor 100k	RD¼PS 104J
	REC-PB connector socket 5P	AKP-007

12.8 CONTROL AMPLIFIER ASSEMBLY (AWG-041)


1
2
3
A
B
C
D
25V
13V
-25V
1.5V
-4.1V
-4.7V
S1-a
S1-b
Q1 2SC1312
Q2 2SC1312
Q3 2SC1312
Q4 2SC1312
R41 2.2K
R42 2.2K
R43 2.2K
R44 2.2K
C37 100/16
C38 100/16
C41 470P
C42 470P
C39 100/16
C40 100/16
R45 1K
R46 1K
R39 100K
R40 100K
C35 2.2/25
C36 2.2/25
C33 100/10
C34 100/10
R37 6.8K
R38 6.8K
C31 12P
C32 12P
R35 4.7K
R36 4.7K
R33 220K
R34 220K
R31 100K
R32 100K
C29 2.2/25
C30 2.2/25
R27 24K
R28 24K
C23 0.018
C24 0.018
C27 2.2/25
C28 2.2/25
R29 11K
R30 11K
VR2-a 102.6K
VR2-b
VR4-a 99K
VR4-b
C25 0.0022
C26 0.0022
R25 10K
R26 10K
C21 0.018
C22 0.018
R21 24K
R22 24K
R23 11K
R24 11K
C19 2.2/25
C20 2.2/25
C17 100/10
C18 100/10
R19 6.8K
R20 6.8K
C15 12P
C16 12P
R17 4.7K
R18 4.7K
R15 220K
R16 220K
R13 100K
R14 100K
C13 2.2/25
C14 2.2/25
R9 47K
R10 47K
C11 2.2/25
C12 2.2/25
R11 33K
R12 33K
C7 0.056
C8 0.056
VR1-a 102K
VR1-b
VR3-a 102K
VR3-b
R7 8.2K
R8 8.2K
C9 390P
C10 390P
C5 0.056
C6 0.056
R3 47K
R4 47K
R5 33K
R6 33K
C1 4.7/25
C2 4.7/25
C3 4.7/25
C4 4.7/25
R1 100K
R2 100K
C43 10/25
C44 10/25
C45 0.068
C46 0.068
1
2
3
4
5
6
7
8
9
10


1
2
3
A
B
C
D
Foil side
AWG-040, No.25
AWG-040, No.23
AWM-089, No.11
AWM-089, No.18
AWM-089, No.16
AWM-089, No.14
AWG-040, No.21
AWG-040, No.26
1
2
3
4
5
6
7
8
9
10
102KΩ
102.6KΩ
99KΩ
102KΩ
S1
VR1-a
VR1-b
VR2-a
VR2-b
VR3-a
VR3-b
VR4-a
VR4-b
Q1 2SC1312
Q2 2SC1312
Q3 2SC1312
Q4 2SC1312
4.7V
1.5V
4.1V

Parts List of Control Amplifier Assembly (AWG-041)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SC1312-G
Q2	Transistor	2SC1312-G
Q3	Transistor	2SC1312-G
Q4	Transistor	2SC1312-G

RESISTORS AND POTENTIOMETERS

Symbol	Description	Part No.
VR1	Variable resistor (SUB BASS) 102k	ACV-165
VR2	Variable resistor (MAIN BASS) 102.6k	ACV-166
VR3	Variable resistor (SUB TREBLE) 102k	ACV-168
VR4	Variable resistor (MAIN TREBLE) 99k	ACV-167
R1	Carbon film 100k	RD¼PS 104J
R2	Carbon film 100k	RD¼PS 104J
R3	Carbon film 47k	RD¼PS 473J
R4	Carbon film 47k	RD¼PS 473J
R5	Carbon film 33k	RD¼PS 333J
R6	Carbon film 33k	RD¼PS 333J
R7	Carbon film 8.2k	RD¼PS 822J
R8	Carbon film 8.2k	RD¼PS 822J
R9	Carbon film 47k	RD¼PS 473J
R10	Carbon film 47k	RD¼PS 473J
R11	Carbon film 33k	RD¼PS 333J
R12	Carbon film 33k	RD¼PS 333J
R13	Carbon film 100k	RD¼PS 104JNL
R14	Carbon film 100k	RD¼PS 104JNL
R15	Carbon film 220k	RD¼PS 224JNL
R16	Carbon film 220k	RD¼PS 224JNL
R17	Carbon film 4.7k	RD¼PS 472J
R18	Carbon film 4.7k	RD¼PS 472J
R19	Carbon film 6.8k	RD¼PS 682J
R20	Carbon film 6.8k	RD¼PS 682J
R21	Carbon film 24k	RD¼PS 243J
R22	Carbon film 24k	RD¼PS 243J
R23	Carbon film 11k	RD¼PS 113J
R24	Carbon film 11k	RD¼PS 113J
R25	Carbon film 10k	RD¼PS 103J
R26	Carbon film 10k	RD¼PS 103J
R27	Carbon film 24k	RD¼PS 243J
R28	Carbon film 24k	RD¼PS 243J
R29	Carbon film 11k	RD¼PS 113J
R30	Carbon film 11k	RD¼PS 113J
R31	Carbon film 100k	RD¼PS 104JNL
R32	Carbon film 100k	RD¼PS 104JNL
R33	Carbon film 220k	RD¼PS 224JNL
R34	Carbon film 220k	RD¼PS 224JNL
R35	Carbon film 4.7k	RD¼PS 472J
R36	Carbon film 4.7k	RD¼PS 472J
R37	Carbon film 6.8k	RD¼PS 682J
R38	Carbon film 6.8k	RD¼PS 682J
R39	Carbon film 100k	RD¼PS 104J
R40	Carbon film 100k	RD¼PS 104J
R41	Carbon film 2.2k	RD¼PS 222J
R42	Carbon film 2.2k	RD¼PS 222J
R43	Carbon film 2.2k	RD¼PS 222J
R44	Carbon film 2.2k	RD¼PS 222J
R45	Carbon film 1k	RD¼PS 102J
R46	Carbon film 1k	RD¼PS 102J

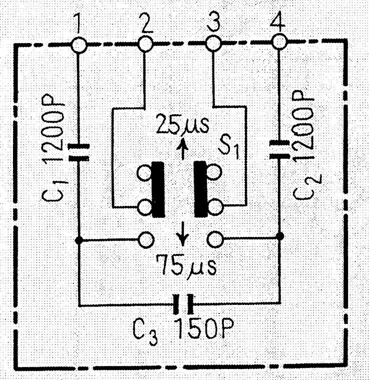
CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 4.7 25V	CSZA 4R7M 25
C2	Electrolytic 4.7 25V	CSZA 4R7M 25
C3	Electrolytic 4.7 25V	CSZA 4R7M 25
C4	Electrolytic 4.7 25V	CSZA 4R7M 25
C5	Mylar 0.056 50V	CQMA 563J 50
C6	Mylar 0.056 50V	CQMA 563J 50
C7	Mylar 0.056 50V	CQMA 563J 50
C8	Mylar 0.056 50V	CQMA 563J 50
C9	Styrol 390p 50V	CQSA 391J 50
C10	Styrol 390p 50V	CQSA 391J 50
C11	Electrolytic 2.2 25V	CEANL 2R2P 25
C12	Electrolytic 2.2 25V	CEANL 2R2P 25
C13	Electrolytic 2.2 25V	CEANL 2R2P 25
C14	Electrolytic 2.2 25V	CEANL 2R2P 25
C15	Ceramic 12p 50V	CCDSL 120K 50
C16	Ceramic 12p 50V	CCDSL 120K 50
C17	Electrolytic 100 16V	ACH-312
C18	Electrolytic 100 16V	ACH-312
C19	Electrolytic 2.2 25V	CEANL 2R2P 25
C20	Electrolytic 2.2 25V	CEANL 2R2P 25
C21	Mylar 0.018 50V	CQMA 183J 50
C22	Mylar 0.018 50V	CQMA 183J 50
C23	Mylar 0.018 50V	CQMA 183J 50
C24	Mylar 0.018 50V	CQMA 183J 50
C25	Ceramic 2200p 50V	CKDYA 222J 50
C26	Ceramic 2200p 50V	CKDYA 222J 50
C27	Electrolytic 2.2 25V	CEANL 2R2P 25
C28	Electrolytic 2.2 25V	CEANL 2R2P 25
C29	Electrolytic 2.2 25V	CEANL 2R2P 25
C30	Electrolytic 2.2 25V	CEANL 2R2P 25
C31	Ceramic 12p 50V	CCDSL 120K 50
C32	Ceramic 12p 50V	CCDSL 120K 50
C33	Electrolytic 100 10V	ACH-312
C34	Electrolytic 100 10V	ACH-312
C35	Electrolytic 2.2 25V	CEANL 2R2P 25
C36	Electrolytic 2.2 25V	CEANL 2R2P 25
C37	Electrolytic 100 16V	ACH-311
C38	Electrolytic 100 16V	ACH-311
C39	Electrolytic 100 16V	ACH-311
C40	Electrolytic 100 16V	ACH-311
C41	Ceramic 470p 50V	CKDYB 471K 50
C42	Ceramic 470p 50V	CKDYB 471K 50
C43	Electrolytic 10 25V	CSZA 100M 25
C44	Electrolytic 10 25V	CSZA 100M 25
C45	Mylar 0.063 50V	CQMA 683J 50
C46	Mylar 0.063 50V	CQMA 683J 50

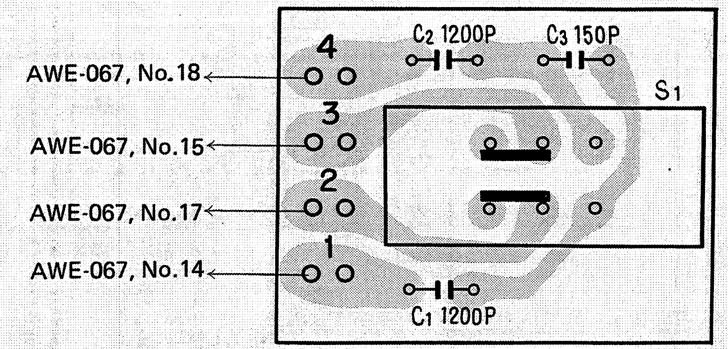
OTHERS

Symbol	Description	Part No.
	Lever switch (TONE)	ASK-090
	Washer faced nut	ABN-024

12.9 DE-EMPHASIS SWITCH ASSEMBLY (AWX-099)



Foil side



Parts List of De-emphasis Switch Assembly (AWX-099)

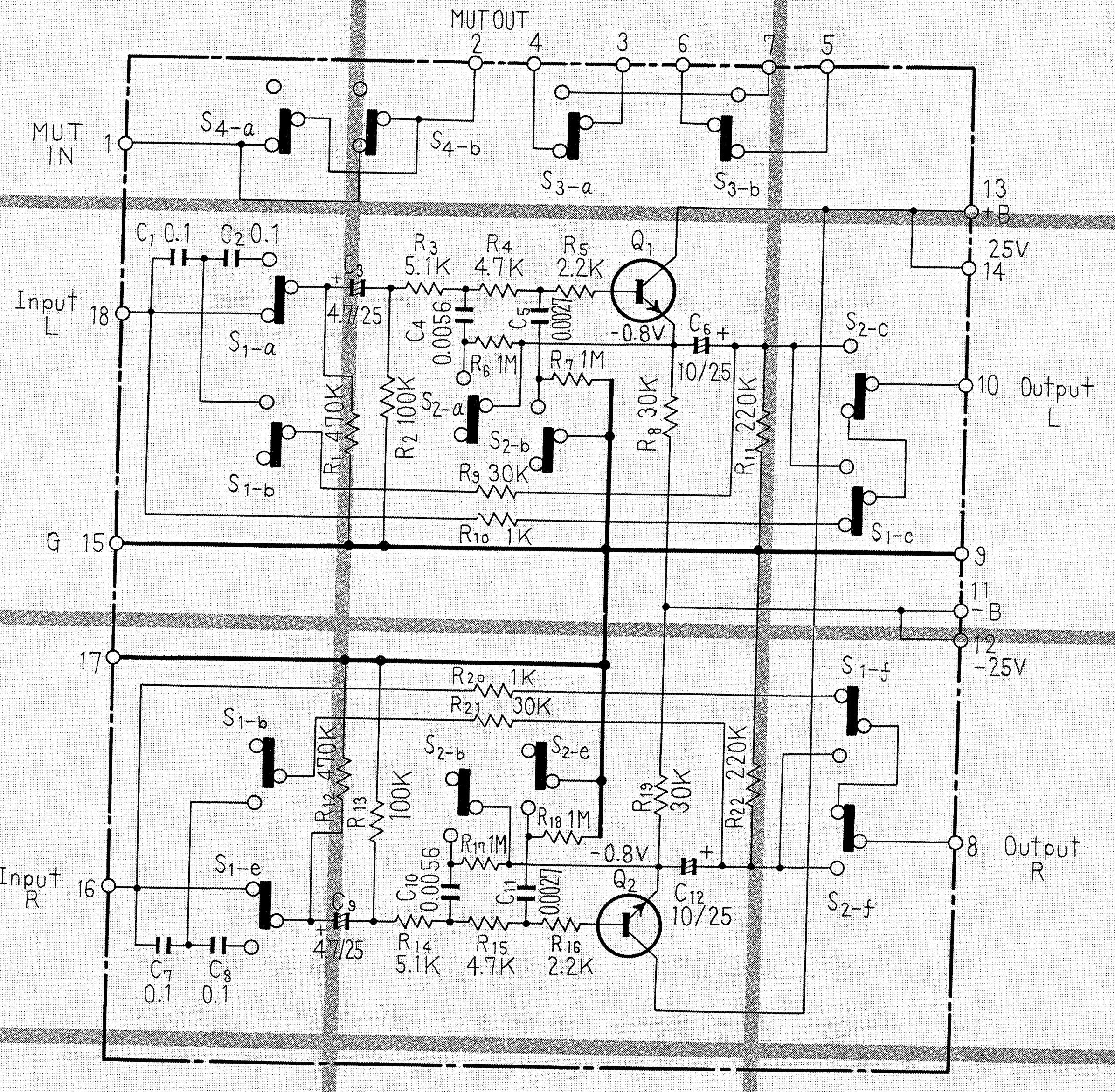
CAPACITORS

Symbol	Description	Part No.
C1	Mylar 1200p 50V	CQMA 122J 50
C2	Mylar 1200p 50V	CQMA 122J 50
C3	Mylar 150p 50V	CCDSL 151K 50

SWITCH

Symbol	Description	Part No.
S1	Slide switch	ASH-015-0

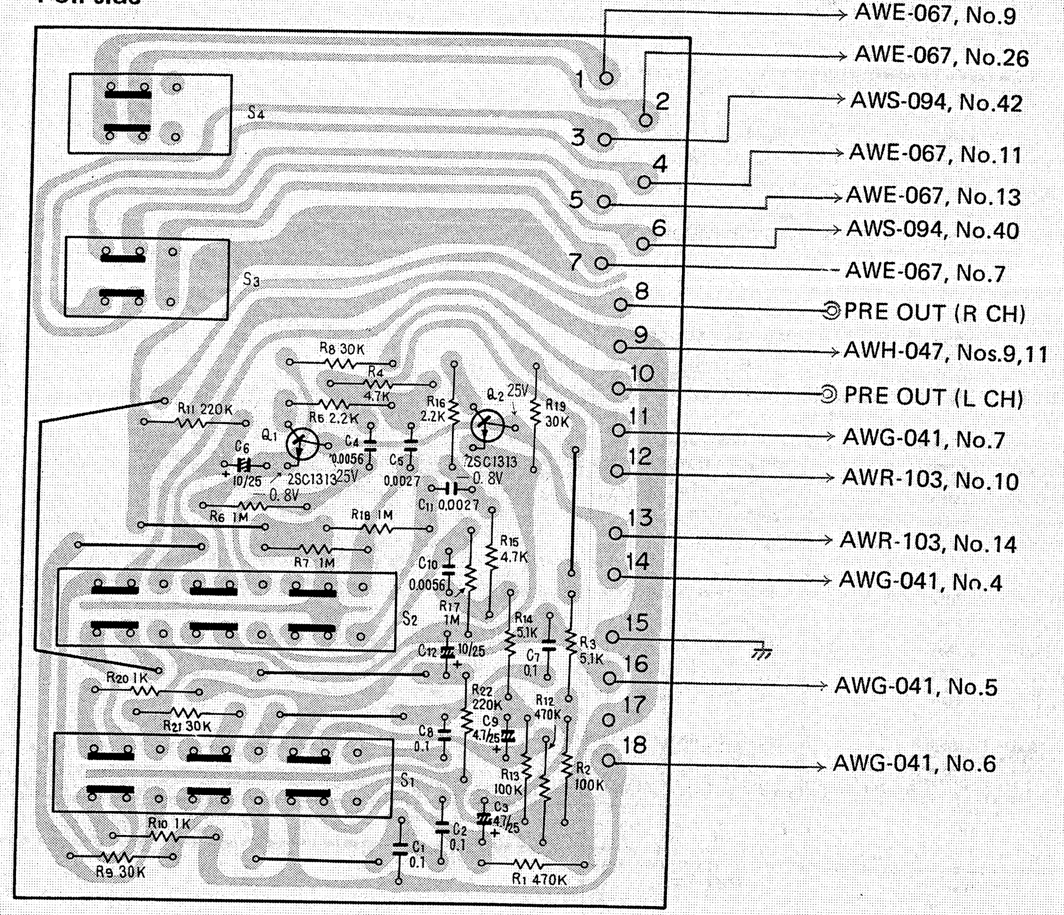
12.10 FILTER AMPLIFIER ASSEMBLY (AWM-089)


MUT OUT
2 4 3 6 7 5
MUT IN 1
S4-a
S4-b
S3-a
S3-b
13 +B
25V 14
C1 0.1
C2 0.1
Input L 18
C3 4.7/25
R3 5.1K
R4 4.7K
R5 2.2K
Q1
C4 0.0056
C5 0.0027
R6 1M
R7 1M
-0.8V
C6 10/25
S2-c
S1-a
S2-a
S2-b
R1 470K
R2 100K
R8 30K
R11 220K
10 Output L
S1-b
R9 30K
R10 1K
S1-c
G 15
9
11 -B
12 -25V
17
R20 1K
R21 30K
S1-f
S1-b
R12 470K
R13 100K
S2-b
S2-e
R17 1M
R18 1M
R19 30K
R22 220K
-0.8V
C10 0.0056
C11 0.0027
C12 10/25
Q2
8 Output R
Input R 16
S1-e
C9 4.7/25
R14 5.1K
R15 4.7K
R16 2.2K
S2-f
C7 0.1
C8 0.1

SWITCHS
S_1 ; LOW FILTER
S_2 ; HIGH FILTER
S_3 ; MULTIPATH
S_4 ; FM MUTING

TRANSISTORS
Q_1, Q_2 2SC1313×2
(2SC1345)

Foil side


S4
S3
S2
S1
Q1
Q2
2SC1313
25V
0.8V
R1 470K
R2 100K
R3 5.1K
R4 4.7K
R6 1M
R7 1M
R8 30K
R9 30K
R10 1K
R11 220K
R12 470K
R13 100K
R14 5.1K
R15 4.7K
R16 2.2K
R17 1M
R18 1M
R19 30K
R20 1K
R21 30K
R22 220K
C1 0.1
C2 0.1
C3 4.7/25
C4 0.0056
C5 0.0027
C6 10/25
C7 0.1
C8 0.1
C9 4.7/25
C10 0.0056
C11 0.0027
C12 10/25
1 → AWE-067, No.9
2 → AWE-067, No.26
3 → AWS-094, No.42
4 → AWE-067, No.11
5 → AWE-067, No.13
6 → AWS-094, No.40
7 — AWE-067, No.7
8 → PRE OUT (R CH)
9 → AWH-047, Nos.9,11
10 → PRE OUT (L CH)
11 → AWG-041, No.7
12 → AWR-103, No.10
13 → AWR-103, No.14
14 → AWG-041, No.4
15
16 → AWG-041, No.5
17
18 → AWG-041, No.6

Parts List of Filter Amplifier Assembly (AWM-089)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SC1313-G
Q2	Transistor	2SC1313-G

SWITCHES

Symbol	Description	Part No.
S1～S4	Push switch (LOW FILTER, HIGH FILTER, MULTIPATH, FM MUTING)	ASG-098

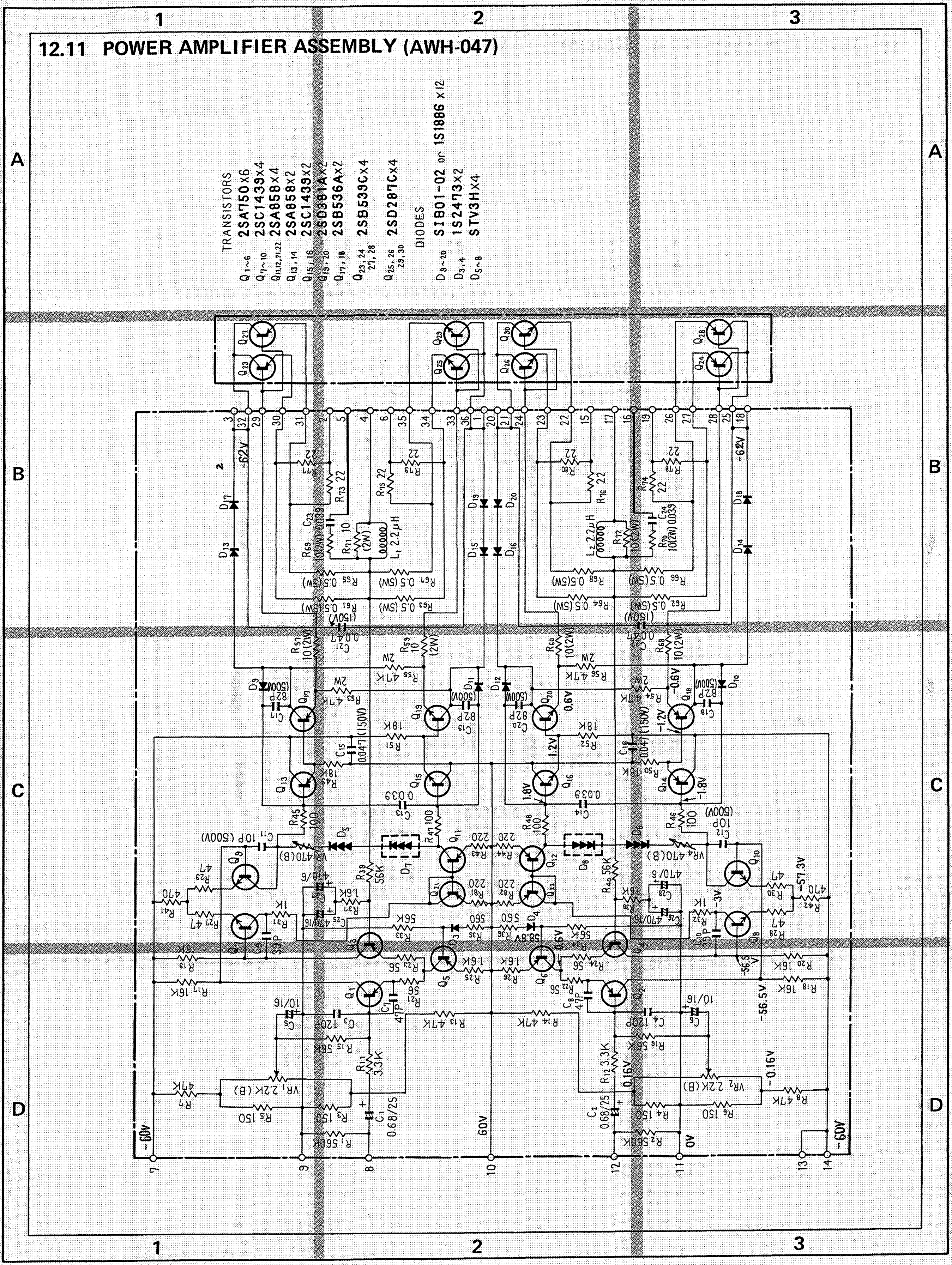
RESISTORS

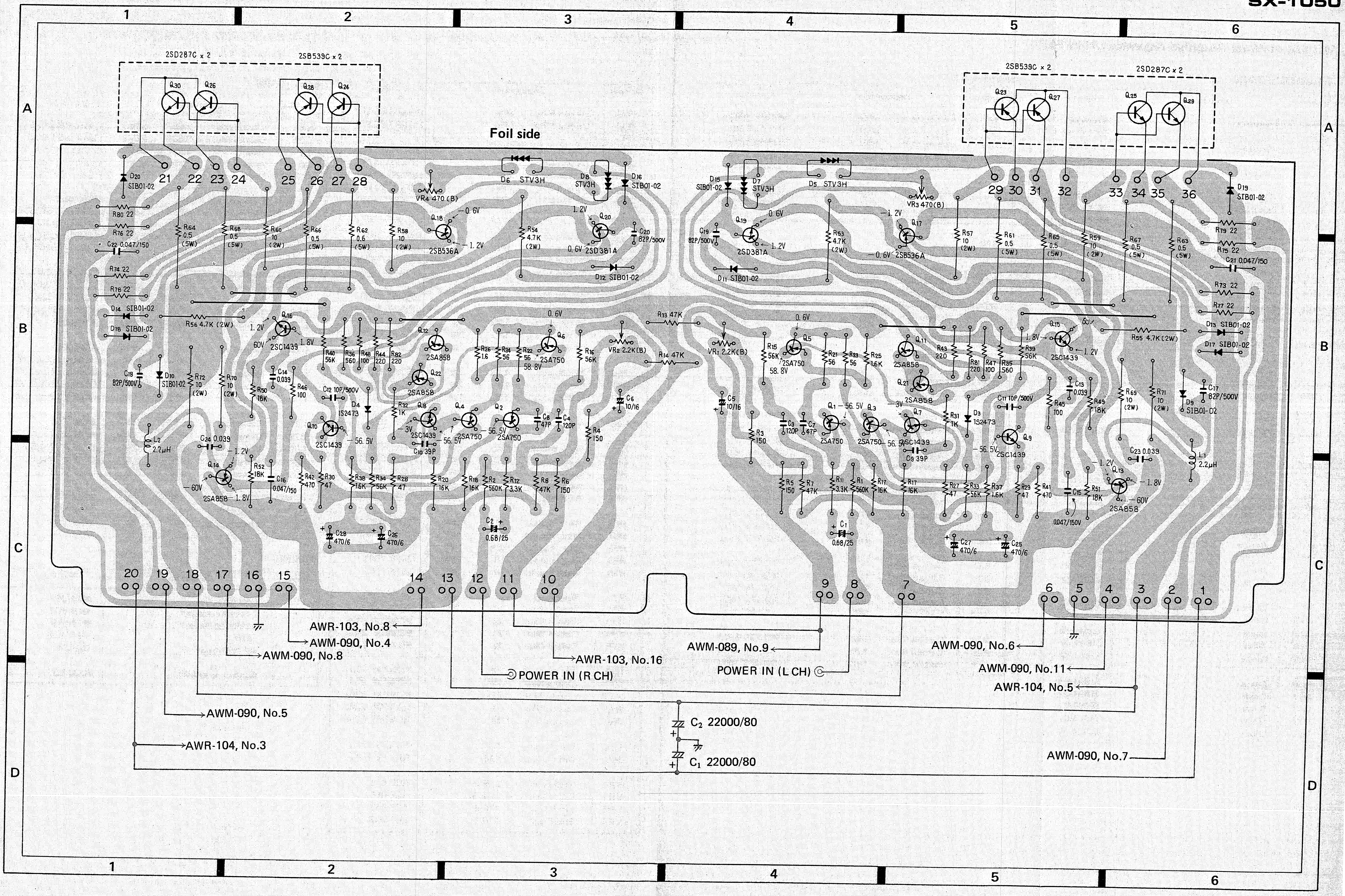
Symbol	Description		Part No.
R1	Carbon film	470k	RD¼PS 474J
R2	Carbon film	100k	RD¼PS 104JNL
R3	Carbon film	5.1k	RD¼PS 512J
R4	Carbon film	4.7k	RD¼PS 472J
R5	Carbon film	2.2k	RD¼PS 222J
R6	Carbon film	1M	RD¼PS 105J
R7	Carbon film	1M	RD¼PS 105J
R8	Carbon film	30k	RD¼PS 303J
R9	Carbon film	30k	RD¼PS 303J
R10	Carbon film	1k	RD¼PS 102J
R11	Carbon film	220k	RD¼PS 224J
R12	Carbon film	470k	RD¼PS 474J
R13	Carbon film	100k	RD¼PS 104JNL
R14	Carbon film	5.1k	RD¼PS 512J
R15	Carbon film	4.7k	RD¼PS 472J
R16	Carbon film	2.2k	RD¼PS 222J
R17	Carbon film	1M	RD¼PS 105J
R18	Carbon film	1M	RD¼PS 105J
R19	Carbon film	30k	RD¼PS 303J
R20	Carbon film	1k	RD¼PS 102J
R21	Carbon film	30k	RD¼PS 303J
R22	Carbon film	220k	RD¼PS 224J

CAPACITORS

Symbol	Description			Part No.
C1	Mylar	0.1	50V	CQMA 104J 50
C2	Mylar	0.1	50V	CQMA 104J 50
C3	Electrolytic	4.7	25V	CSZA 4R7M 25
C4	Ceramic	5600p	50V	CKDYA 562J 50
C5	Ceramic	2700p	50V	CKDYA 272J 50
C6	Electrolytic	10	25V	CSZA 100M 25
C7	Mylar	0.1	50V	CQMA 104J 50
C8	Mylar	0.1	50V	CQMA 104J 50
C9	Electrolytic	4.7	25V	CSZA 4R7M 25
C10	Ceramic	5600p	50V	CKDYA 562J 50
C11	Ceramic	2700p	50V	CKDYA 272J 50
C12	Electrolytic	10	25V	CSZA 100M 25

12.11 POWER AMPLIFIER ASSEMBLY (AWH-047)


1
2
3
A
B
C
D
TRANSISTORS
Q1~6 2SA750×6
Q7~10 2SC1439×4
Q11,12,21,22 2SA858×4
Q13,14 2SA858×2
Q15,16 2SC1439×2
Q19,20 2SD361A×2
Q17,18 2SB536A×2
Q23,24,27,28 2SB539C×4
Q25,26,29,30 2SD287C×4
DIODES
D9~20 S1B01-02 or 1S1886 ×12
D3,4 1S2473×2
D5~8 STV3H×4
-62V
-60V
60V
0V
-56.5V
-57.3V
-0.16V
0.16V


Foil side
1
2
3
4
5
6
A
B
C
D
2SD287C x 2
2SB539C x 2
Q30
Q26
Q28
Q24
Q23
Q27
Q25
Q29
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
D20 SIB01-02
D6 STV3H
D8 STV3H
D16 SIB01-02
D15 SIB01-02
D7 STV3H
D5 STV3H
D19 SIB01-02
VR4 470 (B)
VR3 470 (B)
Q18 2SB536A
Q20 2SD381A
Q19 2SD381A
Q17 2SB536A
C20 82P/500V
C19 82P/500V
D12 SIB01-02
D11 SIB01-02
R80 22
R76 22
C22 0.047/150
R74 22
R78 22
R64 0.5 (5W)
R68 0.5 (5W)
R60 10 (2W)
R66 0.5 (5W)
R62 0.6 (5W)
R58 10 (2W)
R54 4.7K (2W)
R53 4.7K (2W)
R57 10 (2W)
R61 0.5 (5W)
R65 0.5 (5W)
R59 10 (2W)
R67 0.5 (5W)
R63 0.5 (5W)
R79 22
R75 22
C21 0.047/150
R73 22
R77 22
D14 SIB01-02
D18 SIB01-02
R56 4.7K (2W)
R55 4.7K (2W)
D13 SIB01-02
D17 SIB01-02
Q16 2SC1439
Q15 2SC1439
R40 56K
R36 560
R48 100
R44 220
R82 220
Q12 2SA858
Q22 2SA858
R26 1.6
R24 56
R22 56
Q6 2SA750
R16 56K
VR2 2.2K (B)
R13 47K
R14 47K
VR1 2.2K (B)
R15 56K
Q5 2SA750
R21 56
R23 56
R25 1.6K
Q11 2SA858
Q21 2SA858
R43 220
R81 220
R47 100
R35 560
R39 56K
C18 82P/500V
D10 SIB01-02
R72 10 (2W)
R70 10 (2W)
R50 18K
C14 0.039
R46 100
C12 10P/500V
D4 1S2473
R32 1K
Q8 2SC1439
Q4 2SA750
Q2 2SA750
C8 47P
C4 120P
C6 10/16
C5 10/16
R4 150
R3 150
C3 120P
C7 47P
Q1 2SA750
Q3 2SA750
Q7 2SC1439
C11 10P/500V
R31 1K
D3 1S2473
R45 100
C13 0.039
R49 18K
R69 10 (2W)
R71 10 (2W)
C17 82P/500V
D9 SIB01-02
L2 2.2μH
L1 2.2μH
C24 0.039
C23 0.039
Q10 2SC1439
Q9 2SC1439
C10 39P
C9 39P
Q14 2SA858
Q13 2SA858
R52 18K
C16 0.047/150
C15 0.047/150V
R51 18K
R42 470
R30 47
R38 1.5K
R34 56K
R28 47
R20 16K
R18 16K
R2 560K
R12 3.3K
R8 47K
R6 150
R5 150
R7 47K
R11 3.3K
R1 560K
R17 16K
R27 47
R33 56K
R37 1.6K
R29 47
R41 470
C28 470/6
C26 470/6
C2 0.68/25
C1 0.68/25
C27 470/6
C25 470/6
0.6V
1.2V
1.8V
60V
-60V
-56.5V
58.8V
-3V
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
AWR-103, No.8
AWM-090, No.4
AWM-090, No.8
AWR-103, No.16
POWER IN (R CH)
AWM-089, No.9
POWER IN (L CH)
AWM-090, No.6
AWM-090, No.11
AWR-104, No.5
AWM-090, No.5
AWR-104, No.3
C2 22000/80
C1 22000/80
AWM-090, No.7

Parts List of Power Amplifier Assembly (AWH-047)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SA750-E
Q2	Transistor	2SA750-E
Q3	Transistor	2SA750-E
Q4	Transistor	2SA750-E
Q5	Transistor	2SA750-E
Q6	Transistor	2SA750-E
Q7	Transistor	2SC1439-B
Q8	Transistor	2SC1439-B
Q9	Transistor	2SC1439-B
Q10	Transistor	2SC1439-B
Q11	Transistor	2SA858-B
Q12	Transistor	2SA858-B
Q13	Transistor	2SA858-B
Q14	Transistor	2SA858-B
Q15	Transistor	2SC1439-B
Q16	Transistor	2SC1439-B
Q17	Transistor	2SB536A-H
Q18	Transistor	2SB536A-H
Q19	Transistor	2SD381A-H
Q20	Transistor	2SD381A-H
Q21	Transistor	2SA858-B
Q22	Transistor	2SA858-B
D1	....	....
D2	....	....
D3	Diode	1S2473
D4	Diode	1S2473
D5	Varistor	STV3H
D6	Varistor	STV3H
D7	Varistor	STV3H
D8	Varistor	STV3H
D9	Diode	SIB01-02
D10	Diode	SIB01-02
D11	Diode	SIB01-02
D12	Diode	SIB01-02
D13	Diode	SIB01-02
D14	Diode	SIB01-02
D15	Diode	SIB01-02
D16	Diode	SIB01-02
D17	Diode	SIB01-02
D18	Diode	SIB01-02
D19	Diode	SIB01-02
D20	Diode	SIB01-02

RESISTORS

Symbol	Description			Part No.
R1	Carbon film	560k		RD¼PS 564J
R2	Carbon film	560k		RD¼PS 564J
R3	Carbon film	150		RD¼PS 151J
R4	Carbon film	150		RD¼PS 151J
R5	Carbon film	150		RD¼PS 151J
R6	Carbon film	150		RD¼PS 151J
R7	Carbon film	47k		RD¼PS 473J
R8	Carbon film	47k		RD¼PS 473J
R9	....			....
R10	....			....
R11	Carbon film	3.3k		RD¼PS 332J
R12	Carbon film	3.3k		RD¼PS 332J
R13	Carbon film	47k		RD¼PS 473J
R14	Carbon film	47k		RD¼PS 473J
R15	Carbon film	56k		RD¼PS 563J
R16	Carbon film	56k		RD¼PS 563J
R17	Carbon film	16k		RD¼PS 163J
R18	Carbon film	16k		RD¼PS 163J
R19	Carbon film	16k		RD¼PS 163J
R20	Carbon film	16k		RD¼PS 163J
R21	Carbon film	56		RD¼PS 560J
R22	Carbon film	56		RD¼PS 560J
R23	Carbon film	56		RD¼PS 560J
R24	Carbon film	56		RD¼PS 560J
R25	Carbon film	1.6k		RD¼PS 162J
R26	Carbon film	1.6k		RD¼PS 162J
R27	Carbon film	47		RD¼PS 470J
R28	Carbon film	47		RD¼PS 470J
R29	Carbon film	47		RD¼PS 470J
R30	Carbon film	47		RD¼PS 470J
R31	Carbon film	1k		RD¼PS 102J
R32	Carbon film	1k		RD¼PS 102J
R33	Carbon film	56k		RD¼PS 563J
R34	Carbon film	56k		RD¼PS 563J
R35	Carbon film	560		RD¼PS 561J
R36	Carbon film	560		RD¼PS 561J
R37	Carbon film	1.6k		RD¼PS 162J
R38	Carbon film	1.6k		RD¼PS 162J
R39	Carbon film	56k		RD¼PS 563J
R40	Carbon film	56k		RD¼PS 563J
R41	Carbon film	470		RD¼PSF 471J
R42	Carbon film	470		RD¼PSF 471J
R43	Carbon film	220		RD¼PS 221J
R44	Carbon film	220		RD¼PS 221J
R45	Carbon film	100		RD¼PSF 101J
R46	Carbon film	100		RD¼PSF 101J
R47	Carbon film	100		RD¼PSF 101J
R48	Carbon film	100		RD¼PSF 101J
R49	Carbon film	18k		RD¼PS 183J
R50	Carbon film	18k		RD¼PS 183J
R51	Carbon film	18k		RD¼PS 183J
R52	Carbon film	18k		RD¼PS 183J
R53	Metal oxide	4.7k	2W	RS2P 472J
R54	Metal oxide	4.7k	2W	RS2P 472J
R55	Metal oxide	4.7k	2W	RS2P 472J
R56	Metal oxide	4.7k	2W	RS2P 472J
R57	Metal oxide	10	2W	RS2P 100J
R58	Metal oxide	10	2W	RS2P 100J
R59	Metal oxide	10	2W	RS2P 100J
R60	Metal oxide	10	2W	RS2P 100J
R61	Wire wound	0.5	5W	RT5B 0R5K
R62	Wire wound	0.5	5W	RT5B 0R5K
R63	Wire wound	0.5	5W	RT5B 0R5K
R64	Wire wound	0.5	5W	RT5B 0R5K
R65	Wire wound	0.5	5W	RT5B 0R5K
R66	Wire wound	0.5	5W	RT5B 0R5K
R67	Wire wound	0.5	5W	RT5B 0R5K
R68	Wire wound	0.5	5W	RT5B 0R5K
R69	Metal oxide	10	2W	RS2P 100J
R70	Metal oxide	10	2W	RS2P 100J
R71	Metal oxide	10	2W	RS2P 100J
R72	Metal oxide	10	2W	RS2P 100J
R73	Carbon film	22		RD¼PSF 220J
R74	Carbon film	22		RD¼PSF 220J
R75	Carbon film	22		RD¼PSF 220J
R76	Carbon film	22		RD¼PSF 220J
R77	Carbon film	22		RD¼PSF 220J
R78	Carbon film	22		RD¼PSF 220J
R79	Carbon film	22		RD¼PSF 220J
R80	Carbon film	22		RD¼PSF 220J
R81	Carbon film	220		RD¼PS 221J
R82	Carbon film	220		RD¼PS 221J
VR1	Semi-fixed	2.2k-B		ACP-054
VR2	Semi-fixed	2.2k-B		ACP-054
VR3	Semi-fixed	470-B		ACP-033
VR4	Semi-fixed	470-B		ACP-033

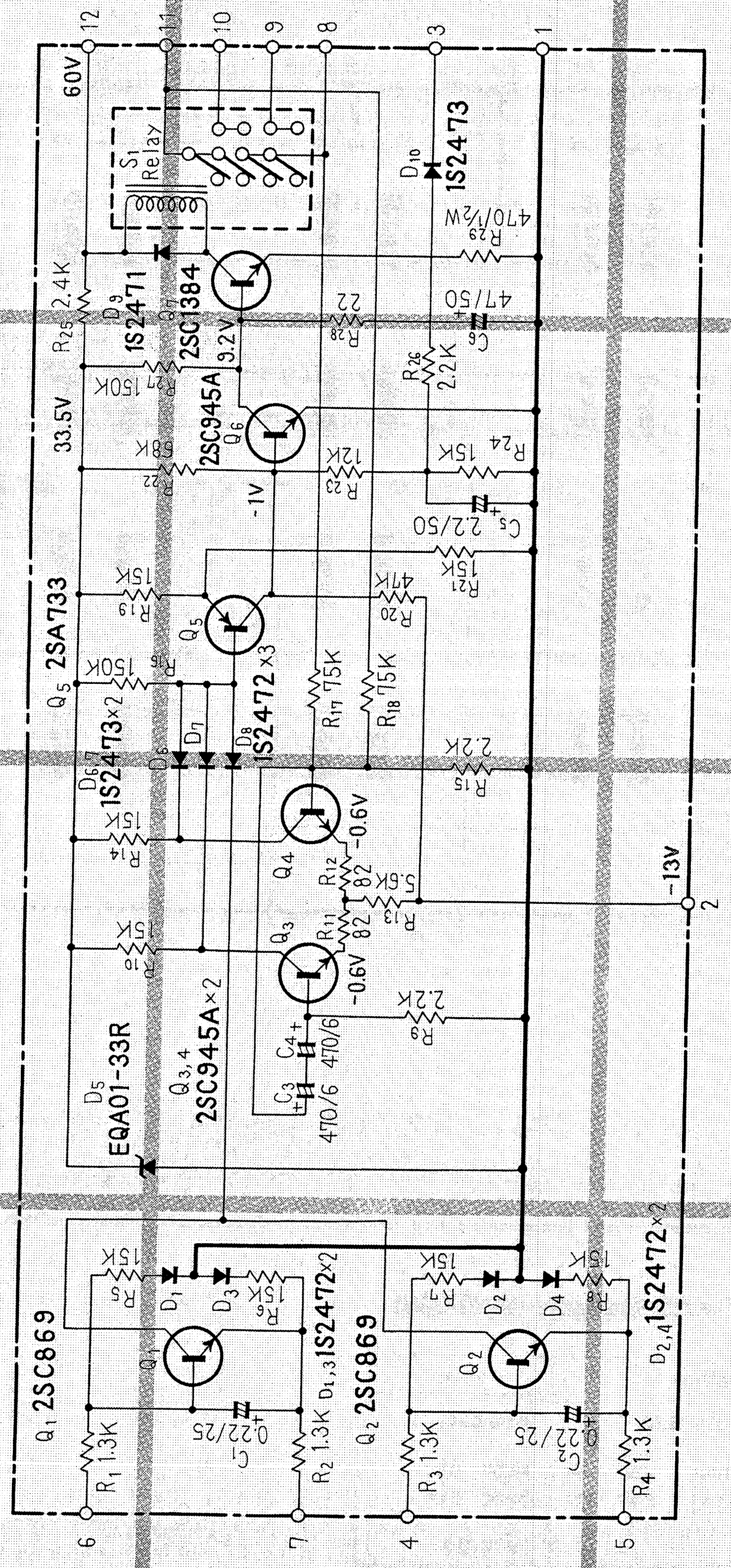
CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	0.68	25V	CSZA R68M 25
C2	Electrolytic	0.68	25V	CSZA R68M 25
C3	Ceramic	120p	50V	CCDSL 121K 50
C4	Ceramic	120p	50V	CCDSL 121K 50
C5	Electrolytic	10	16V	CEA 100P 16
C6	Electrolytic	10	16V	CEA 100P 16
C7	Ceramic	47p	50V	CCDSL 470K 50
C8	Ceramic	47p	50V	CCDSL 470K 50
C9	Ceramic	39p	50V	CCDSL 390K 50
C10	Ceramic	39p	50V	CCDSL 390K 50
C11	Ceramic	10p	500V	CCDSL 100K 500
C12	Ceramic	10p	500V	CCDSL 100K 500
C13	Mylar	0.039	50V	CQMA 393J 50
C14	Mylar	0.039	50V	CQMA 393J 50
C15	Ceramic	0.047	150V	ACG-009
C16	Ceramic	0.047	150V	ACG-009
C17	Ceramic	82p	500V	CCDSL 820K 500
C18	Ceramic	82p	500V	CCDSL 820K 500
C19	Ceramic	82p	500V	CCDSL 820K 500
C20	Ceramic	82p	500V	CCDSL 820K 500
C21	Ceramic	0.047	150V	ACG-009
C22	Ceramic	0.047	150V	ACG-009
C23	Mylar	0.039	50V	CQMA 393J 50
C24	Mylar	0.039	50V	CQMA 393J 50
C25	Electrolytic	470	6V	CEA 471P 6
C26	Electrolytic	470	6V	CEA 471P 6
C27	Electrolytic	470	6V	CEA 471P 6
C28	Electrolytic	470	6V	CEA 471P 6

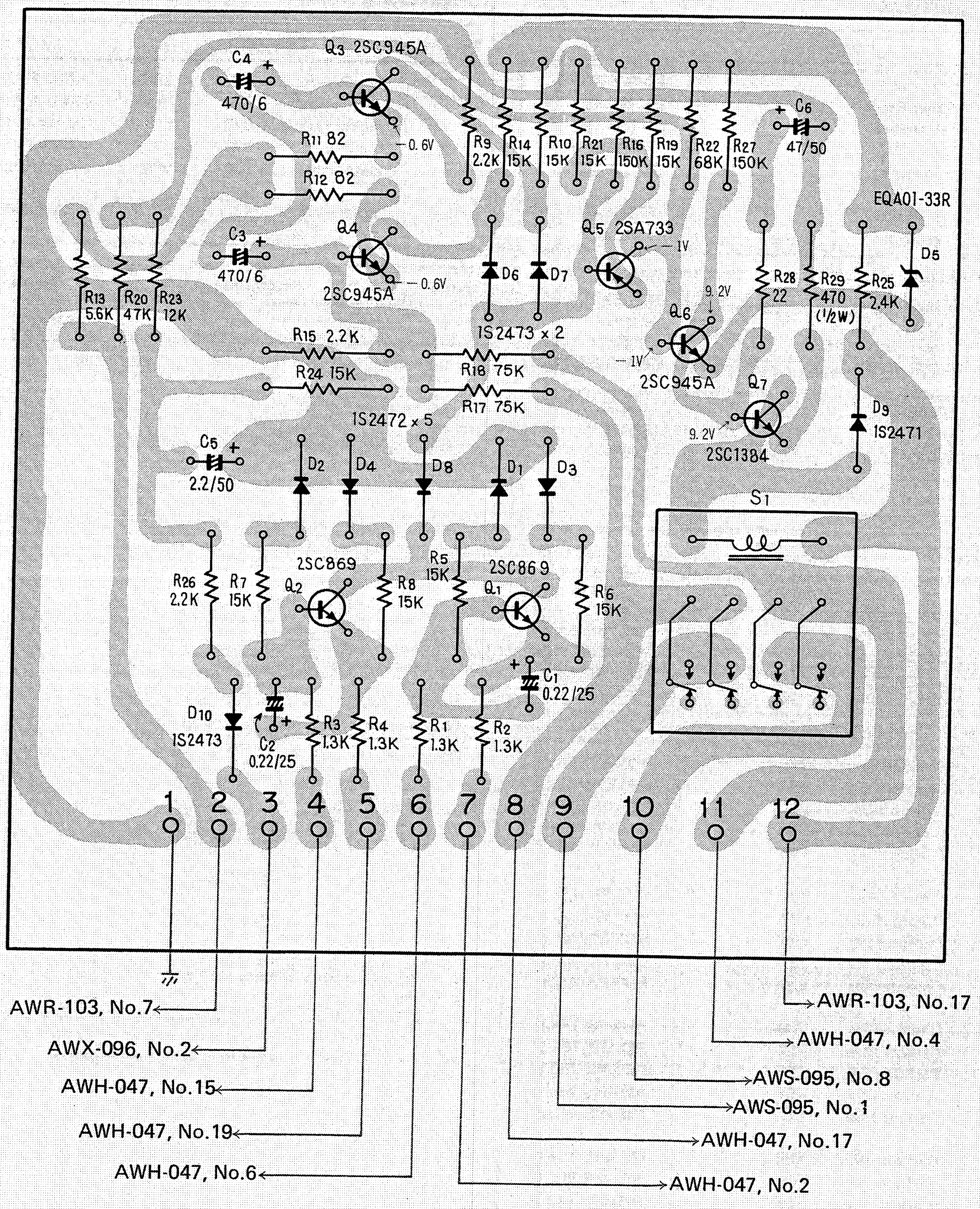
OTHERS

Symbol	Description	Part No.
	Heat sink	ANH-237
	Transistor socket	AKH-002
	insulating wafer	AEC-078
	Spacer	ANG-108
	AF choke coil	T63-009
	Contact strip (4P)	AKM-022

12.12 PROTECTION CIRCUIT ASSEMBLY (AWM-090)


S1 Relay
D10 1S2473
R29 470/½W
C6 47/50
R25 2.4K
D9 1S2471
Q7 2SC1384
Q6 2SC945A
R27 150K
R22 68K
R23 12K
R24 15K
C5 2.2/50
R21 15K
R20 47K
R19 15K
Q5 2SA733
R16 150K
R17 75K
R18 75K
D6,7 1S2473×2
D8 1S2472×3
R15 2.2K
R14 15K
Q4
R12 82
R11 82
R13 5.6K
R10 15K
Q3
R9 2.2K
C3 470/6
C4 470/6
Q3,4 2SC945A×2
D5 EQA01-33R
D1,3 1S2472×2
D2,4 1S2472×2
Q1 2SC869
Q2 2SC869
R1 1.3K
R2 1.3K
R3 1.3K
R4 1.3K
C1 0.22/25
C2 0.22/25
60V
33.5V
-13V
-0.6V
-1V
9.2V

Foil side


Q3 2SC945A
C4 470/6
R11 82
R12 82
C3 470/6
Q4 2SC945A
Q5 2SA733
D6 D7 1S2473 × 2
Q6 2SC945A
Q7 2SC1384
C6 47/50
EQA01-33R
D5
D9 1S2471
R13 5.6K R20 47K R23 12K
R15 2.2K
R24 15K
R18 75K
R17 75K
C5 2.2/50
1S2472 × 5
D2 D4 D8 D1 D3
S1
R26 2.2K
R7 15K
R8 15K
R5 15K
R6 15K
Q2 2SC869
Q1 2SC869
D10 1S2473
C2 0.22/25
C1 0.22/25
R3 1.3K R4 1.3K R1 1.3K R2 1.3K
R9 2.2K R14 15K R10 15K R21 15K R16 150K R19 15K R22 68K R27 150K
R28 22 R29 470 (½W) R25 2.4K
1 2 3 4 5 6 7 8 9 10 11 12
AWR-103, No.7
AWX-096, No.2
AWH-047, No.15
AWH-047, No.19
AWH-047, No.6
AWH-047, No.2
AWH-047, No.17
AWS-095, No.1
AWS-095, No.8
AWH-047, No.4
AWR-103, No.17

Parts List of Protection Circuit Assembly (AWM-090)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SC869-C
Q2	Transistor	2SC869-C
Q3	Transistor	2SC945A-Q
Q4	Transistor	2SC945A-Q
Q5	Transistor	2SA733-Q
Q6	Transistor	2SC945-Q
Q7	Transistor	2SC1384-R
D1	Diode	1S2472
D2	Diode	1S2472
D3	Diode	1S2472
D4	Diode	1S2472
D5	Diode	EQA01-33R
D6	Diode	1S2473
D7	Diode	1S2473
D8	Diode	1S2472
D9	Diode	1S2471
D10	Diode	1S2473

RESISTORS

Symbol	Description	Part No.
R1	Carbon film 1.3k	RD¼PSF 132J
R2	Carbon film 1.3k	RD¼PSF 132J
R3	Carbon film 1.3k	RD¼PSF 132J
R4	Carbon film 1.3k	RD¼PSF 132J
R5	Carbon film 15k	RD¼PS 153J
R6	Carbon film 15k	RD¼PS 153J
R7	Carbon film 15k	RD¼PS 153J
R8	Carbon film 15k	RD¼PS 153J
R9	Carbon film 15k	RD¼PS 153J
R10	Carbon film 15k	RD¼PS 153J
R11	Carbon film 82	RD¼PS 820J
R12	Carbon film 82	RD¼PS 820J
R13	Carbon film 5.6k	RD¼PS 562J
R14	Carbon film 15k	RD¼PS 153J
R15	Carbon film 2.2k	RD¼PS 222J
R16	Carbon film 150k	RD¼PS 154J
R17	Carbon film 75k	RD¼PS 753J
R18	Carbon film 75k	RD¼PS 753J
R19	Carbon film 15k	RD¼PS 153J
R20	Carbon film 47k	RD¼PS 473J
R21	Carbon film 15k	RD¼PS 153J
R22	Carbon film 68k	RD¼PS 683J
R23	Carbon film 12k	RD¼PS 123J
R24	Carbon film 15k	RD¼PS 153J
R25	Carbon film 3.4k	RD¼PS 342J
R26	Carbon film 2.2k	RD¼PS 222J
R27	Carbon film 150k	RD¼PS 154J
R28	Carbon film 22	RD¼PS 220J
R29	Carbon film 470 ½W	RD½PS 471J

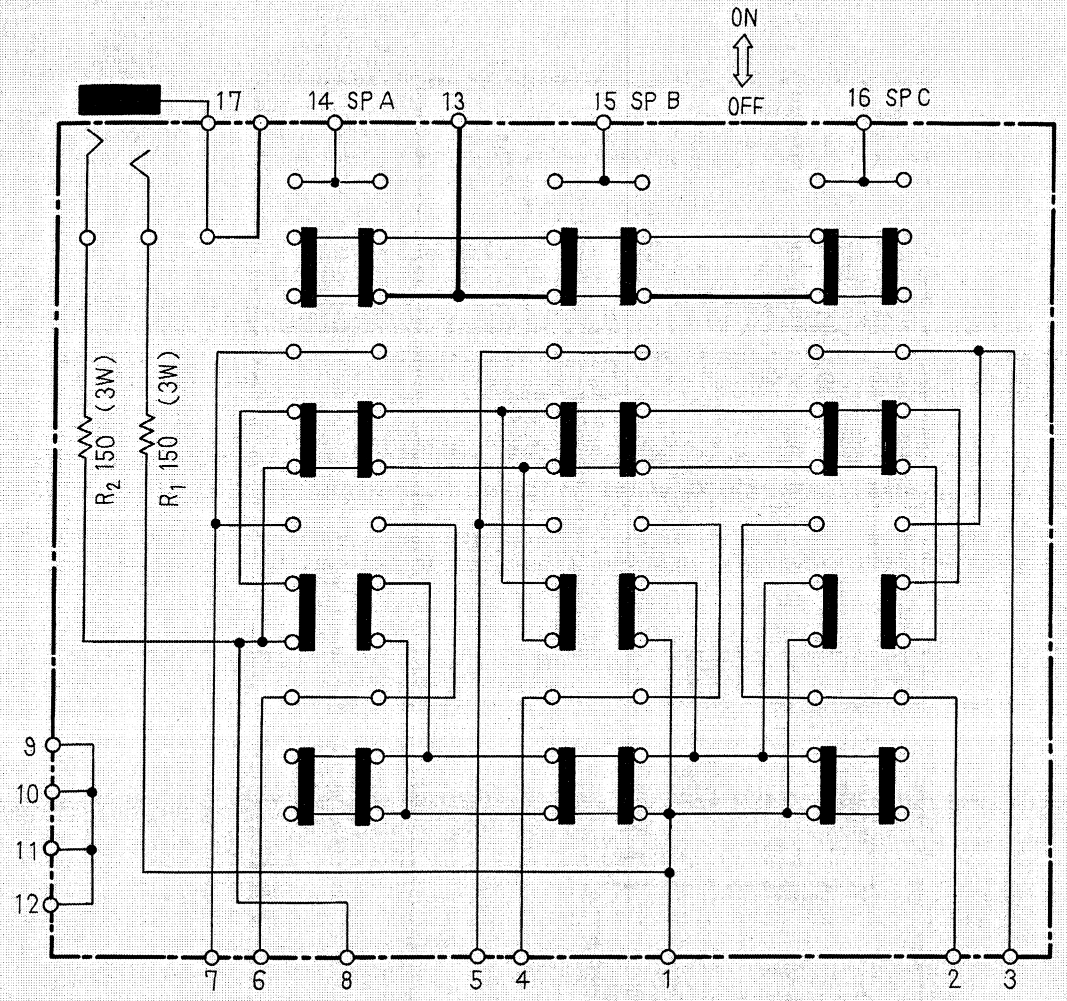
CAPACITORS

Symbol	Description	Part No.
C1	Electrolytic 0.22 25V	CSSA R22 M25
C2	Electrolytic 0.22 25V	CSSA R22 M25
C3	Electrolytic 470 6V	CEA 471P 6
C4	Electrolytic 470 6V	CEA 471P 6
C5	Electrolytic 2.2 50V	CEA 2R2P 50
C6	Electrolytic 47 50V	CEA 470P 50

OTHER

Symbol	Description	Part No.
S1	Relay	ASR-020

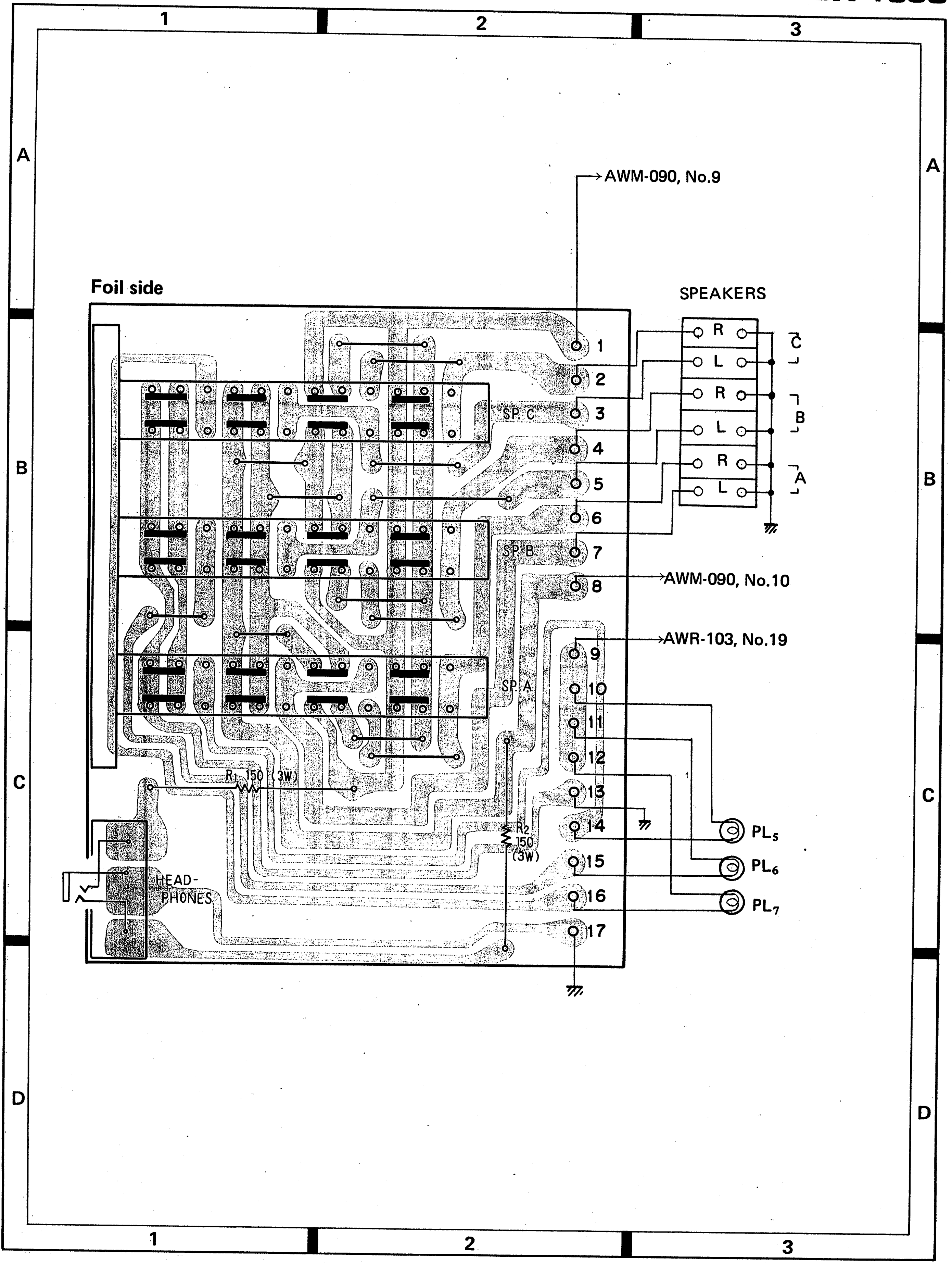
12.13 SPEAKER SWITCH ASSEMBLY (AWS-095)



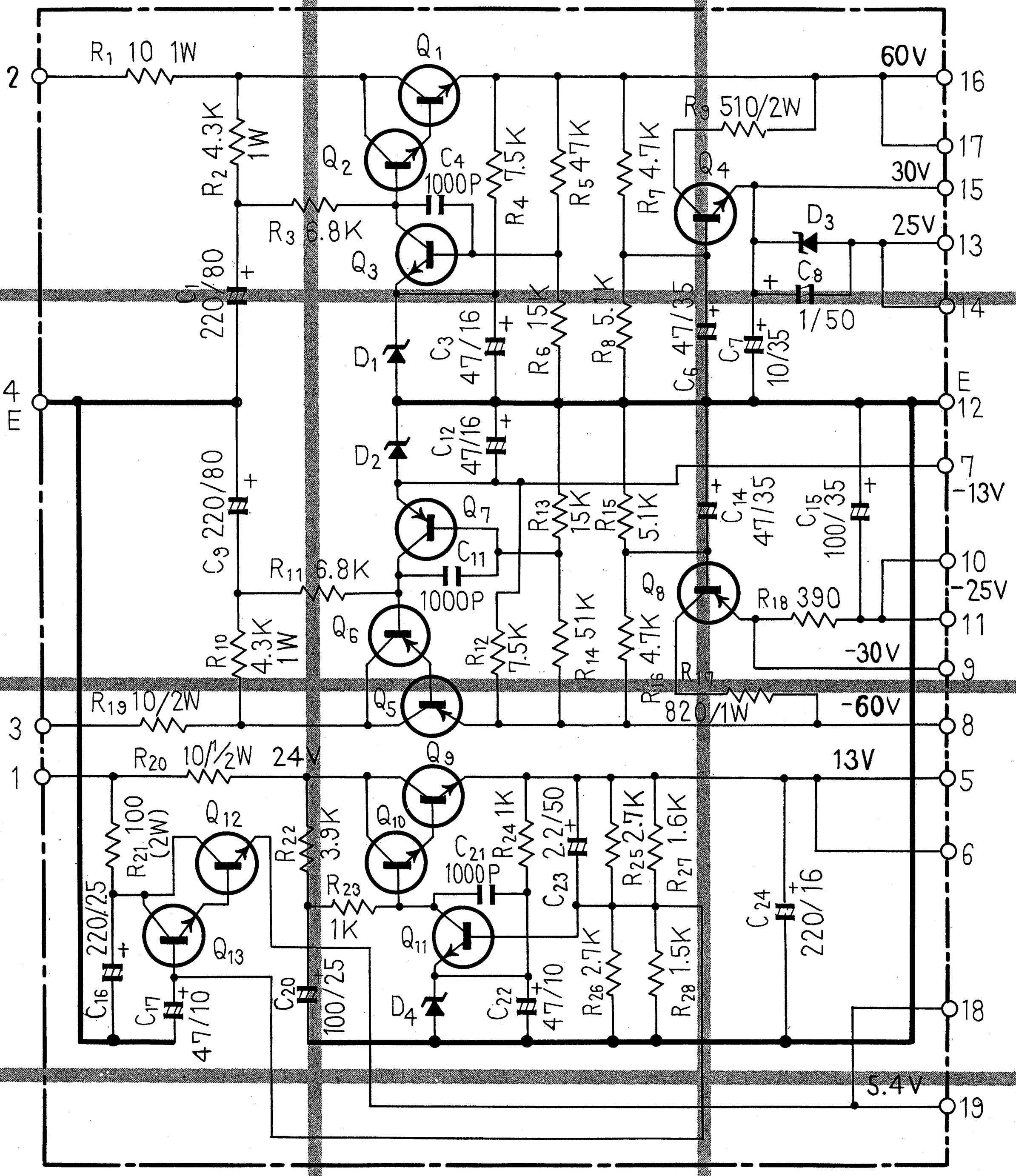
Parts List of Speaker Switch Assembly (AWS-095)

Symbol	Description	Part No.
S1	Push switch (SPEAKERS)	ASG-094
R1	Metal oxide resistor 150 3W	RS3P 151K
R2	Metal oxide resistor 150 3W	RS3P 151K
	PHONES jack	AKN-010

Foil side


1
2
3
A
B
C
D
AWM-090, No.9
SPEAKERS
R
L
R
L
R
L
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
SP. C
SP. B
SP. A
AWM-090, No.10
AWR-103, No.19
R1 150 (3W)
R2 150 (3W)
HEAD-PHONES
PL5
PL6
PL7

12.14 POWER SUPPLY CIRCUIT ASSEMBLY-A (AWR-103)



1
2
3
A
B
C
D
R1 10 1W
Q1
60V
2
16
R2 4.3K 1W
Q2
C4 1000P
R4 7.5K
R5 47K
R7 4.7K
R9 510/2W
17
Q4
30V
15
R3 6.8K
Q3
D3
25V
13
C1 220/80
C8 1/50
14
D1
C3 47/16
R6 15K
R8 5.1K
C6 47/35
C7 10/35
4
E
E
12
D2
C12 47/16
7
-13V
C9 220/80
Q7
R13 15K
R15 5.1K
C14 47/35
C15 100/35
C11
R11 6.8K
1000P
10
-25V
Q8
Q6
R18 390
11
R10 4.3K 1W
R12 7.5K
R14 51K
R16 4.7K
-30V
9
R19 10/2W
Q5
R17 820/1W
-60V
3
8
R20 10/½W
24V
Q9
13V
1
5
Q12
R21 100 (2W)
R22 3.9K
Q10
R24 1K
C23 2.2/50
R25 2.7K
R27 1.6K
6
C21 1000P
R23 1K
Q11
C24 220/16
C16 220/25
Q13
C17 47/10
C20 100/25
D4
C22 47/10
R26 2.7K
R28 1.5K
18
5.4V
19

Transistors

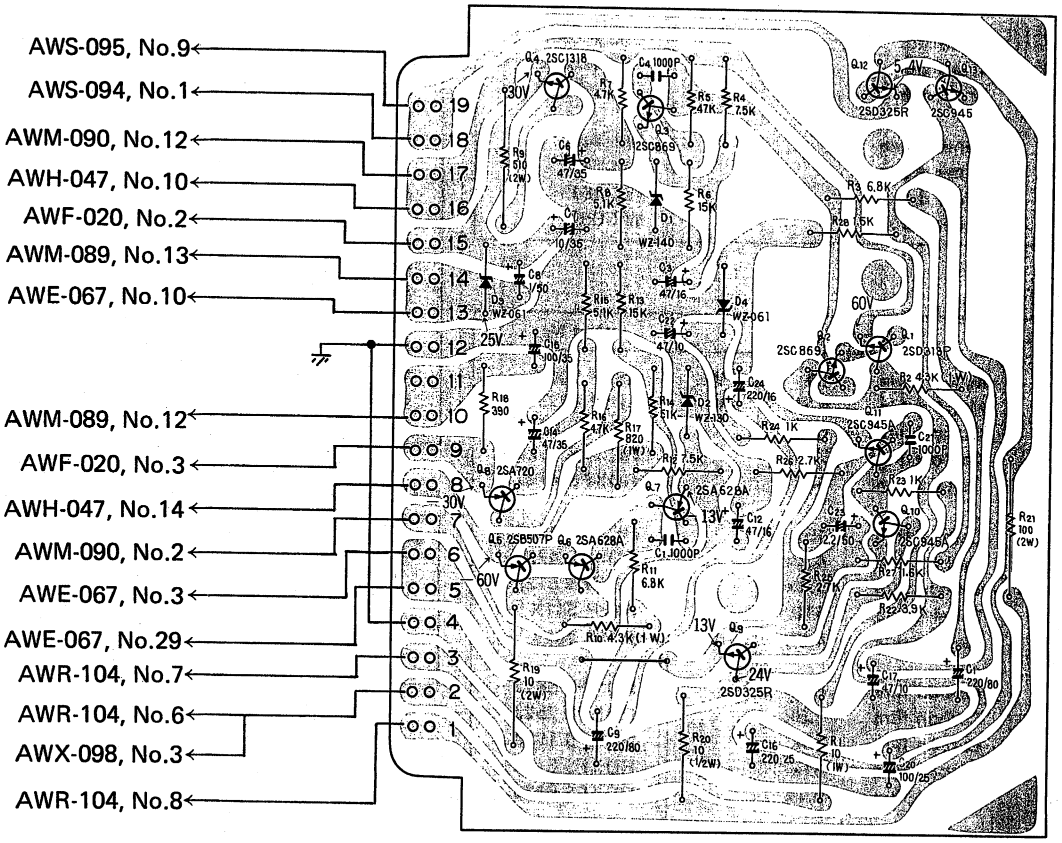
Q$_1$; 2SD313P
Q$_{2,3}$; 2SC869 ×2
Q$_4$; 2SC1318
Q$_5$; 2SB507P
Q$_{6,7}$; 2SA628A×2

Q$_8$;2SA720
Q$_{9,12}$;2SD325R
Q$_{10,11,13}$;2SC945A×3

Diodes

D$_1$;WZ-140
D$_2$;WZ-130
D$_{3,4}$;WZ-061×2

Foil side


AWS-095, No.9
AWS-094, No.1
AWM-090, No.12
AWH-047, No.10
AWF-020, No.2
AWM-089, No.13
AWE-067, No.10
AWM-089, No.12
AWF-020, No.3
AWH-047, No.14
AWM-090, No.2
AWE-067, No.3
AWE-067, No.29
AWR-104, No.7
AWR-104, No.6
AWX-098, No.3
AWR-104, No.8
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Q4 2SC1318
30V
R9 510 (2W)
C6 47/35
R7 4.7K
C4 1000P
Q3 2SC869
R5 47K
R4 7.5K
R8 5.1K
D1 WZ-140
R6 15K
C7 10/35
C8 1/50
D3 WZ-061
25V
C10 100/35
R15 5.1K
R13 15K
C3 47/16
C2 47/10
D4 WZ-061
R18 390
C14 47/35
R16 4.7K
R17 820 (1W)
R14 51K
D2 WZ-130
C24 220/16
Q8 2SA720
-30V
R12 7.5K
Q7 2SA628A
13V
C12 47/16
C1 1000P
Q5 2SB507P
Q6 2SA628A
60V
R11 6.8K
R10 4.3K (1W)
13V
Q9
24V
2SD325R
R19 10 (2W)
C9 220/80
R20 10 (1/2W)
C16 220/25
Q12
5.4V
Q13
2SD325R
2SC945
R3 6.8K
R28 1.5K
60V
2SC869
Q2
Q1
2SD313P
R2 4.3K (1W)
Q11 2SC945A
C21 1000P
R24 1K
R26 2.7K
R23 1K
Q10
C25 2.2/50
2SC945A
R21 100 (2W)
R25 27K
R27 1.8K
R22 3.9K
C17 47/10
C11 220/80
R1 10 (1W)
C20 100/25

1
2
3
A
B
C
D

Parts List of Power Supply Circuit Assembly-A (AWR-103)

SEMICONDUCTORS

Symbol	Description	Part No.
Q1	Transistor	2SD313P-E
Q2	Transistor	2SC869-D
Q3	Transistor	2SC869-D
Q4	Transistor	2SC1318-R
Q5	Transistor	2SB507P-E
Q6	Transistor	2SA628A-D
Q7	Transistor	2SA628A-D
Q8	Transistor	2SA720-R
Q9	Transistor	2SD325R-E
Q10	Transistor	2SC945A-R
Q11	Transistor	2SC945A-R
Q12	Transistor	2SD325R-E
Q13	Transistor	2SC945A-R
D1	Zener diode	WZ-140
D2	Zener diode	WZ-130
D3	Zener diode	WZ-061
D4	Zener diode	WZ-061

RESISTORS

Symbol	Description			Part No.
R1	Metal oxide	10	1W	RS1P 100K
R2	Metal oxide	4.3k	1W	RS1P 432K
R3	Carbon film	6.8k		RD¼PS 682J
R4	Carbon film	7.5k		RD¼PS 752J
R5	Carbon film	47k		RD¼PS 473J
R6	Carbon film	15k		RD¼PS 153J
R7	Carbon film	4.7k		RD¼PS 472J
R8	Carbon film	5.1k		RD¼PS 512J
R9	Metal oxide	510	2W	RS2P 511K
R10	Metal oxide	4.3k	1W	RS1P 432K
R11	Carbon film	6.8k		RD¼PS 682J
R12	Carbon film	7.5k		RD¼PS 752J
R13	Carbon film	15k		RD¼PS 153J
R14	Carbon film	51k		RD¼PS 513J
R15	Carbon film	5.1k		RD¼PS 512J
R16	Carbon film	4.7k		RD¼PS 472J
R17	Metal oxide	820	1W	RS1P 821K
R18	Carbon film	390		RD¼PS 391J
R19	Metal oxide	10	2W	RS2P 100K
R20	Carbon film	10	½W	RD½PS 100J
R21	Metal oxide	100	2W	RS2P 101K
R22	Carbon film	3.9k		RD¼PS 392J
R23	Carbon film	1k		RD¼PS 102J
R24	Carbon film	1k		RD¼PS 102J
R25	Carbon film	2.7k		RD¼PS 272J
R26	Carbonf ilm	2.7k		RD¼PS 272J
R27	Carbon film	1.6k		RD¼PS 162J
R28	Carbon film	1.5k		RD¼PS 152J

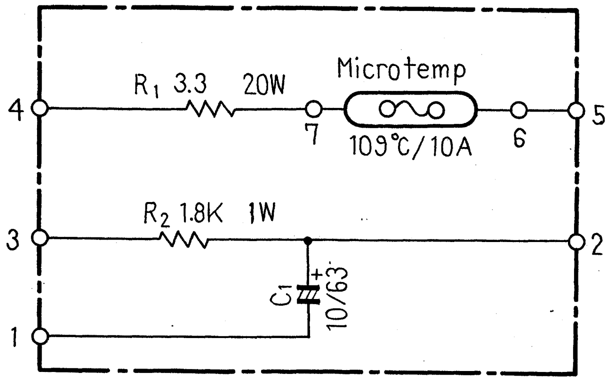
CAPACITORS

Symbol	Description			Part No.
C1	Electrolytic	220	80V	CEA 221P 80
C2	....			....
C3	Electrolytic	47	16V	CEA 470P 16
C4	Ceramic	1000p	50V	CKDYF 102Z 50
C5	....			....
C6	Electrolytic	47	35V	CEA 470P 35
C7	Electrolytic	10	35V	CEA 100P 35
C8	Electrolytic	1	50V	CEA 010P 50
C9	Electrolytic	220	80V	CEA 221P 80
C10	....			....
C11	Ceramic	1000p	50V	CKDYF 102Z 50
C12	Electrolytic	47	16V	CEA 470P 16
C13	....			....
C14	Electrolytic	47	35V	CEA 470P 35
C15	Electrolytic	100	35V	CEA 101P 35
C16	Electrolytic	220	25V	CEA 221P 25
C17	Electrolytic	47	10V	CEA 470P 10
C18	....			....
C19	....			....
C20	Electrolytic	100	25V	CEA 101P 25
C21	Ceramic	1000p	50V	CKDYF 102Z 50
C22	Electrolytic	47	10V	CEA 470P 10
C23	Electrolytic	2.2	50V	CEA 2R2P 50
C24	Electrolytic	220	16V	CEA 221P 16

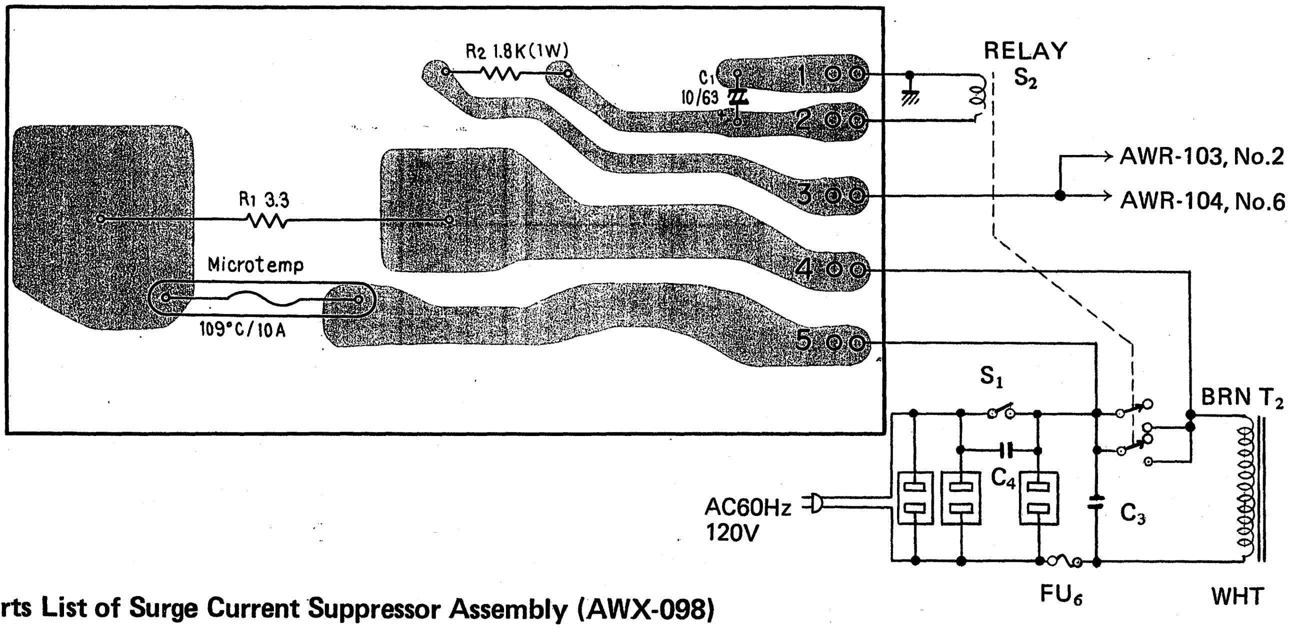
OTHERS

Symbol	Description	Part No.
	Heat sink	ANH-117
	Heat sink	ANH-237
	Transistor socket	AKH-002
	Insulated wafer	AEC-043

12.15 SURGE CURRENT SUPPRESSOR ASSEMBLY (AWX-098)


R1 3.3 20W
Microtemp
109℃/10A
4
7
6
5
R2 1.8K 1W
3
2
C1
+
10/63
1

Foil side


R2 1.8K(1W)
C1
10/63
1
2
3
4
5
R1 3.3
Microtemp
109°C/10A
RELAY
S2
AWR-103, No.2
AWR-104, No.6
S1
BRN T2
C4
C3
AC60Hz
120V
FU6
WHT

Parts List of Surge Current Suppressor Assembly (AWX-098)

RESISTORS

Symbol	Description	Part No.
R1	Wire wound 3.3Ω 20W	ACN-006
R2	Metal oxide 1.8k 1W	RS1PF 182J

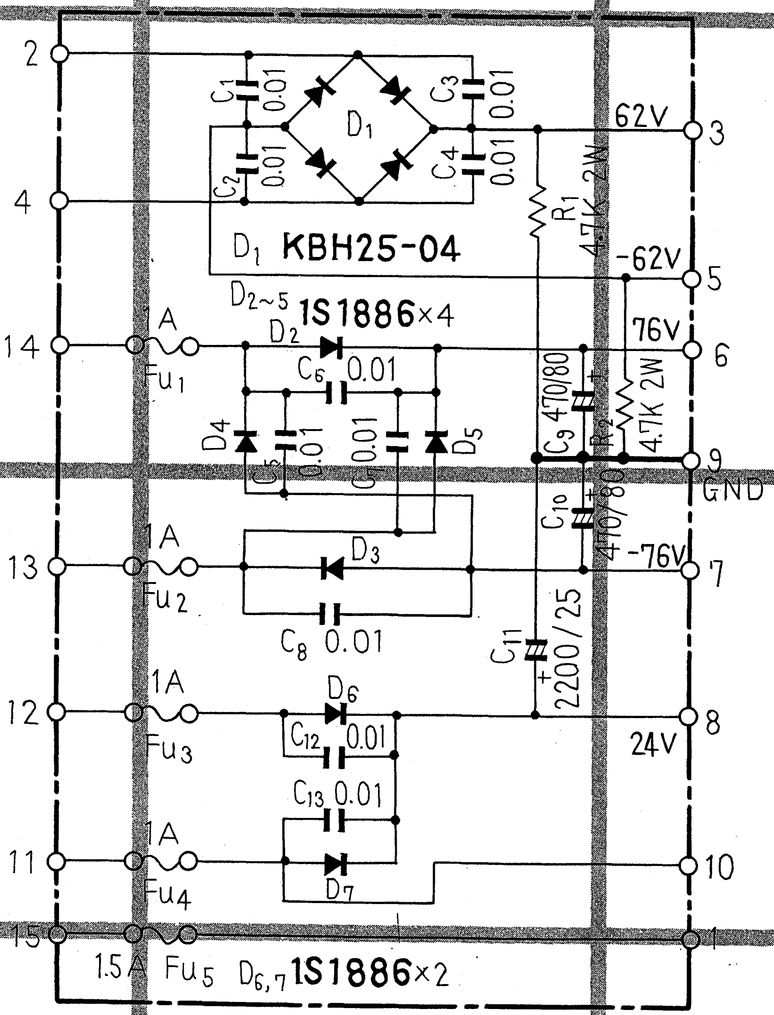
CAPACITOR

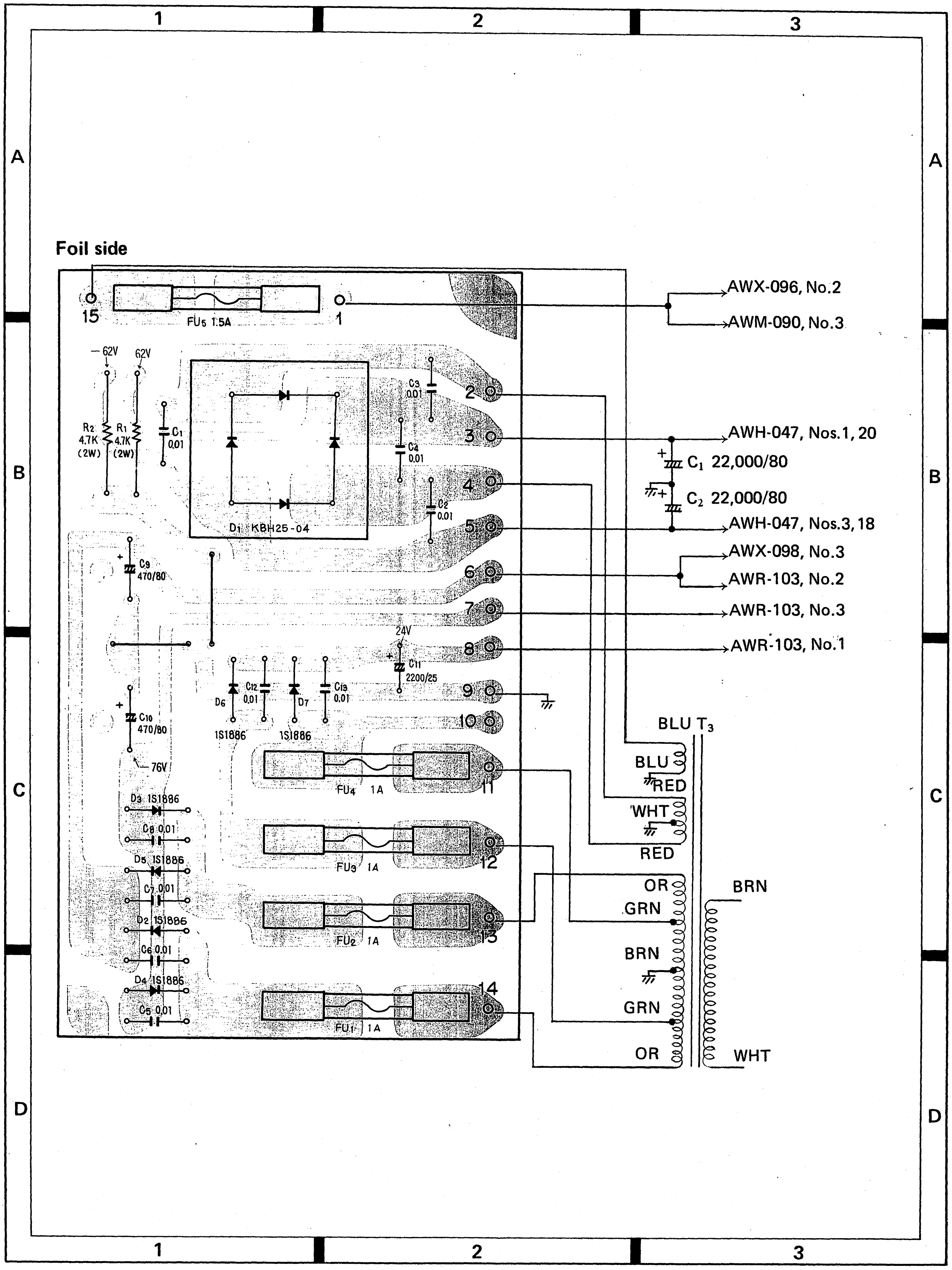
Symbol	Description	Part No.
C1	Electrolytic 10 63V	CEA 100P 63

OTHER

Symbol	Description	Part No.
	Micro-temp.	AEX-001

12.16 POWER SUPPLY CIRCUIT ASSEMBLY-B (AWR-104)


2
4
14
13
12
11
15
3
5
6
9
7
8
10
1
C1 0.01
C2 0.01
C3 0.01
C4 0.01
D1
D1 KBH25-04
62V
-62V
R1 4.7K 2W
D2~5 1S1886×4
1A
Fu1
D2
C6 0.01
76V
D4
C5 0.01
C7 0.01
D5
C9 470/80
R2 4.7K 2W
GND
C10 470/80
1A
Fu2
D3
-76V
C8 0.01
C11 2200/25
1A
Fu3
D6
C12 0.01
24V
C13 0.01
1A
Fu4
D7
1.5A
Fu5
D6,7 1S1886×2


Foil side
1
2
3
A
B
C
D
15
1
FU5 1.5A
−62V
62V
R2 4.7K (2W)
R1 4.7K (2W)
C1 0.01
D1 KBH25-04
C3 0.01
C4 0.01
C2 0.01
C9 470/80
C10 470/80
−76V
24V
C11 2200/25
D6 1S1886
C12 0.01
D7 1S1886
C13 0.01
D3 1S1886
C8 0.01
D5 1S1886
C7 0.01
D2 1S1886
C6 0.01
D4 1S1886
C5 0.01
FU4 1A
FU3 1A
FU2 1A
FU1 1A
2
3
4
5
6
7
8
9
10
11
12
13
14
AWX-096, No.2
AWM-090, No.3
AWH-047, Nos.1, 20
C1 22,000/80
C2 22,000/80
AWH-047, Nos.3, 18
AWX-098, No.3
AWR-103, No.2
AWR-103, No.3
AWR-103, No.1
BLU T3
BLU
RED
WHT
RED
OR
GRN
BRN
GRN
OR
BRN
WHT

Parts List of Power Supply Circuit Assembly-B (AWR-104)

SEMICONDUCTORS

Symbol	Description	Part No.
D1	Diode	KBH25-04
D2	Diode	1S1886
D3	Diode	1S1886
D4	Diode	1S1886
D5	Diode	1S1886
D6	Diode	1S1885
D7	Diode	1S1885

RESISTORS

Symbol	Description			Part No.
R1	Metal oxide	4.7k	2W	RS 2P 472K
R2	Metal oxide	4.7k	2W	RS 2P 472K

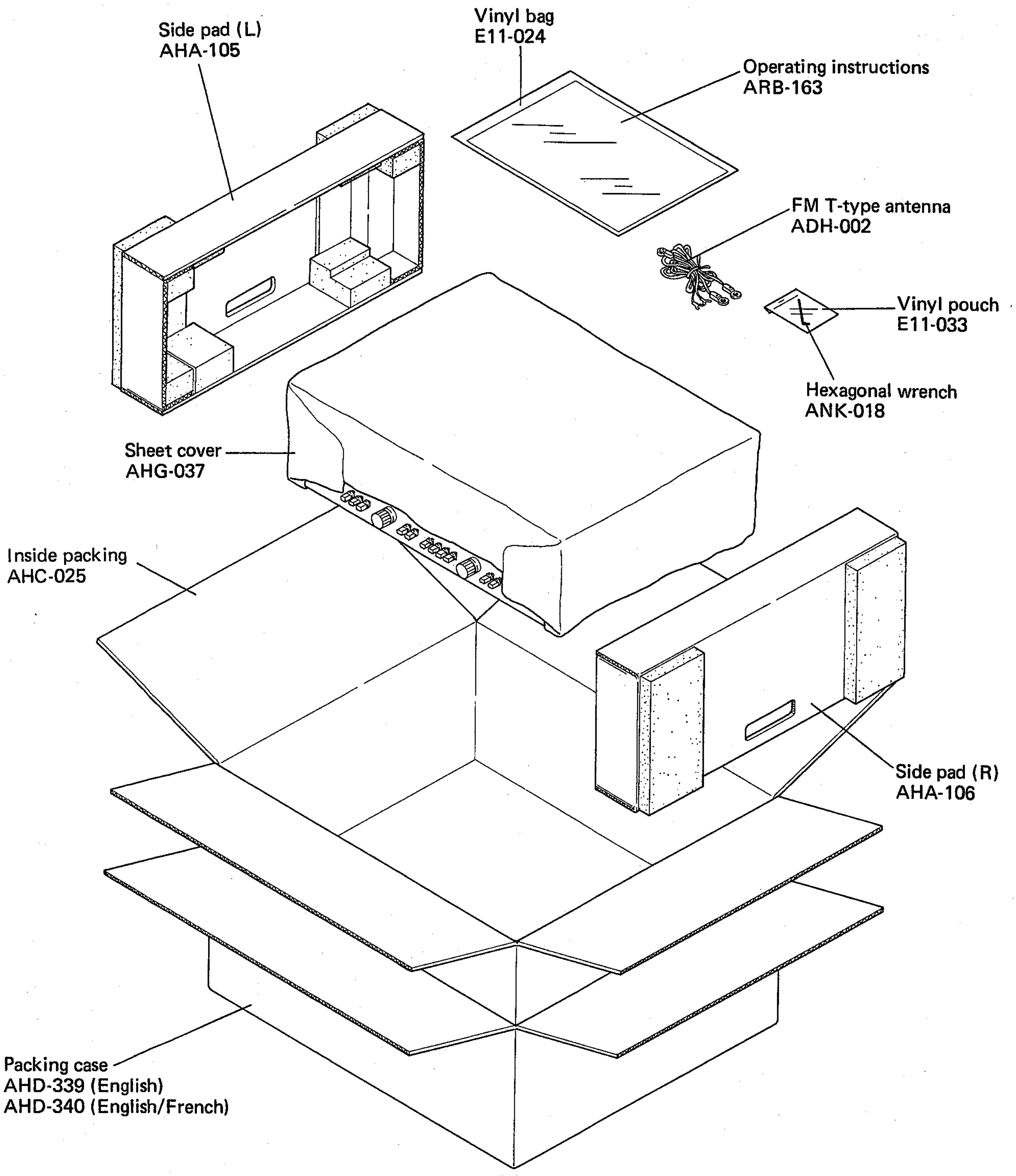
CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	0.01	150V	ACG-004
C2	Ceramic	0.01	150V	ACG-004
C3	Ceramic	0.01	150V	ACG-004
C4	Ceramic	0.01	150V	ACG-004
C5	Ceramic	0.01	150V	ACG-004
C6	Ceramic	0.01	150V	ACG-004
C7	Ceramic	0.01	150V	ACG-004
C8	Ceramic	0.01	150V	ACG-004
C9	Electrolytic	470	80V	ACH-038
C10	Electrolytic	470	80V	ACH-038
C11	Electrolytic	2200	25V	CEA 222P 25
C12	Ceramic	0.01	150V	ACG-004
C13	Ceramic	0.01	150V	ACG-004

OTHERS

Symbol	Description	Part No.
	Fuse clip	AKP-013
	Fuse clip	AKP-030
	Heat sink	ANH-297

13. PACKING


Side pad (L)
AHA-105
Vinyl bag
E11-024
Operating instructions
ARB-163
FM T-type antenna
ADH-002
Vinyl pouch
E11-033
Hexagonal wrench
ANK-018
Sheet cover
AHG-037
Inside packing
AHC-025
Side pad (R)
AHA-106
Packing case
AHD-339 (English)
AHD-340 (English/French)

14. PARTS LIST OF EXPLODED VIEWS

Parts No.	Parts Name
AAA-034	Knob
AAB-100	Knob
AAB-104	Knob
AAD-113	Knob
AAD-114	Knob
AAF-051	Dial Pointer
AAG-105	Dial Panel
AAP-036	Blind Sash
AAT-025	Shaft Cover
AAT-026	Indicator
AAT-027	Indicator
AAT-028	Indicator
AAW-040	Double Meter
ABA-002	Screw (3 x 8)
ABA-012	Screw (4 x 8)
ABA-082	Screw (3 x 10)
ABA-113	Screw (4 x 15)
ABA-114	Pulley Shaft
ABA-116	Screw (3 x 6)
ABE-006	Washer
ABH-022	Coil Spring
ABN-021	Union Nut
ABN-022	Flange Boss
ABN-023	Flange Nut (M6)
ABN-024	Flange Nut (M9)
ACH-056	Electrolytic Capacitor (22,000μF 30V)
ACV-163	Variable Resistor (100k ohm HB)
ACV-165	Variable Resistor (102k ohm)
ACV-166	Variable Resistor (102.6k ohm)
ACV-167	Variable Resistor (99k ohm)
ACV-168	Variable Resistor (102k ohm)
ACV-169	Variable Resistor (50k ohm)
ADG-013	AC Power Cord
ADH-002	FM T-type Antenna
ADX-027	Connector Ass. (4P)
ADX-028	Connector Ass. (4P)
AEB-085	Rubber Holder (A)
AEB-086	Rubber Holder (B)
AEC-076	Insulated Wafer
AEC-079	Strain Relief
AEC-101	Pulley
AEC-258	Spacer
AEC-260	Acrylic Board
AED-018	Mask
AEK-104	Fuse (1.5A)
AEK-106	Fuse (1A)
AEK-302	Fuse (10A)
AEL-056	Lamp Ass.
AEL-069	Lamp (with Wire)

Parts No.	Parts Name
AEL-072	Lamp (with Wire)
AEL-073	Lamp (with Wire)
AEL-074	Lamp (with Wire)
AEL-075	Lamp (with Wire)
AEL-076	Lamp (with Wire)
AHA-105	Side Pad (L)
AHA-106	Side Pad (R)
AHC-025	Inside Packing
AHD-339	Packing Case (English)
AHD-340	Packing Case (English/French)
AHG-037	Sheet Cover
AKA-004	Terminal
AKB-019	Terminal
AKB-030	Terminal
AKB-033	Terminal
AKE-012	Terminal
AKE-014	Terminal
AKH-001	Transistor Socket
AKM-004	Jumper Plug
AKN-010	Phone Jack
AKN-013	Phone Jack
AKP-005	AC Socket
AKP-007	REC-PB Socket (5P)
AKR-028	Fuse Holder (KCU model)
AKR-031	Voltage Selector SW (S model)
AMM-050	Top Cover
ANB-388	Front Panel Ass.
ANK-018	Hexagonal Wrench
ARB-163	Operating Instruction (KCU model)
ARB-165	Operating Instruction (S model)
ASG-094	Push Switch
ASG-095	Push Switch
ASG-098	Push Switch
ASH-015	Slide Switch
ASK-080	Lever Switch
ASK-090	Lever Switch
ASK-092	Lever Switch
ASR-019	Relay
ATB-050	Ferrite Bar-Antenna
ATT-266	Power Transformer (KCU)
ATT-290	Power Transformer (S)
AWE-067	Tuner Ass.
AWF-020	Equalizer Amp. Ass.
AWG-040	Flat Amp. Ass.
AWG-041	Control Amp. Ass.
AWH-047	Power Amp. Ass.
AWM-089	Filter Amp. Ass.
AWM-090	Protection Ass.
AWR-103	Power Supply Ass. (A)
AWR-104	Power Supply Ass. (B)

Parts No.	Parts Name
AWS-094	Function Switch Ass.
AWS-095	Speaker Switch Ass.
AWX-062	5P Connector Ass.
AWX-096	Lamp Board Ass.
AWX-097	Mic Jack Ass.
AWX-098	Surge Killer Ass.
AWX-099	De-emphasis SW Ass. (KCU model)
AWX-101	De-emphasis SW Ass. (S model)
AXA-111	Tuning Shaft Ass.
AXA-113	Tuning Drum Ass.
B71-004	Nut (M9)
B71-010	Nut (M7)
E11-024	Vinyl Bag
E11-033	Vinyl Pouch
M45-086	Washer (M9)
W72-096	Bar-Antenna Holder
2SB539C	Transistor
2SD287C	Transistor

15. ADDITIONAL INFORMATION(SX-1050/S)

NOTE:

- *For servicing of the SX-1050/S please refer to pages 1 ~ 101 of SX-1050/KCU manual with the exception of the power transformer section and de-emphasis switch assembly which are described in this supplement.*

Miscellaneous Parts List

NOTE:

- *Capacitors: in μF unless otherwise noted p:pF*
- *Resistors: in Ω, ¼W unless otherwise noted k:kΩ, M:MΩ*

SEMICONDUCTORS

Symbol	Description	Part No.
Q23	Transistor	2SB539C-S
Q24	Transistor	2SB539C-S
Q25	Transistor	2SD287C-S
Q26	Transistor	2SD287C-S
Q27	Transistor	2SB539C-S
Q28	Transistor	2SB539C-S
Q29	Transistor	2SD287C-S
Q30	Transistor	2SD287C-S

SWITCHES

Symbol	Description	Part No.
S1	Lever switch (POWER)	ASK-080
S2	Relay	ASR-015
S5	Voltage selector switch	AKR-031

TRANSFORMERS AND COIL

Symbol	Description	Part No.
T1	Ferrite balun	T22-025
T2	Ferrite bar-antenna	ATB-050
T3	Power transformer	ATT-290

RESISTOR AND CAPACITORS

Symbol	Description			Part No.
R1	Carbon film	2.2M	½W	RD½PS 225J
C1	Electrolytic	22000	80V	ACH-056
C2	Electrolytic	22000	80V	ACH-056
C3	Ceramic	0.01	250V	ACG-001
C4	Ceramic	0.01	250V	ACG-001
C5	Ceramic	0.01	50V	CKDYF 103Z 50
C6	Ceramic	0.01	50V	CKDYF 103Z 50
C7	Ceramic	0.01	50V	CKDYF 103Z 50
C8	Ceramic	0.01	50V	CKDYF 103Z 50
C9	Ceramic	0.01	50V	CKDYF 103Z 50
C10	Ceramic	0.01	50V	CKDYF 103Z 50
C11	Ceramic	0.01	50V	CKDYF 103Z 50

FUSES

Symbol	Description	Part No.
F1	Fuse 1A	AEK-106
F2	Fuse 1A	AEK-106
F3	Fuse 1A	AEK-106
F4	Fuse 1A	AEK-106
F5	Fuse 2A	AEK-103
F6	Fuse 5A (110V/120V)	AEK-108
	Fuse 10A (220V/240V)	AEK-302

LAMPS

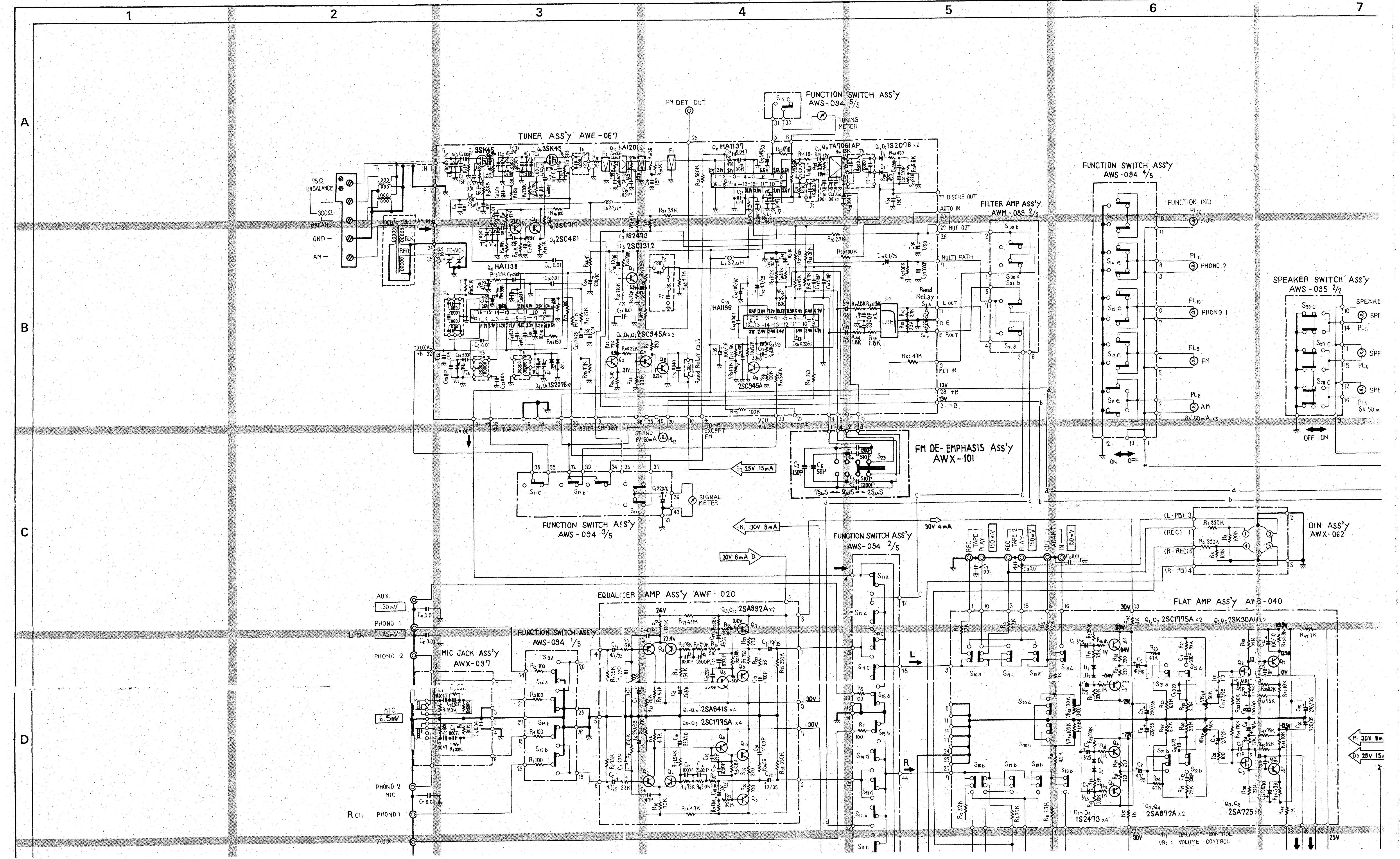
Symbol	Description			Part No.
PL1	Lamp assembly	8V	300mA	AEL-056
PL2	Lamp assembly	8V	300mA	AEL-056
PL3	Lamp assembly	8V	300mA	AEL-056
PL4	Lamp assembly	8V	300mA	AEL-056
PL5	Lamp with wire	8V	50mA	AEL-074
PL6	Lamp with wire	8V	50mA	AEL-072
PL7	Lamp with wire	8V	50mA	AEL-073
PL8	Lamp with wire	8V	50mA	AEL-076
PL9	Lamp with wire	8V	50mA	AEL-075
PL10	Lamp with wire	8V	50mA	AEL-074
PL11	Lamp with wire	8V	50mA	AEL-072
PL12	Lamp with wire	8V	50mA	AEL-073
PL13	Lamp with wire	8V	50mA	AEL-069

OTHERS

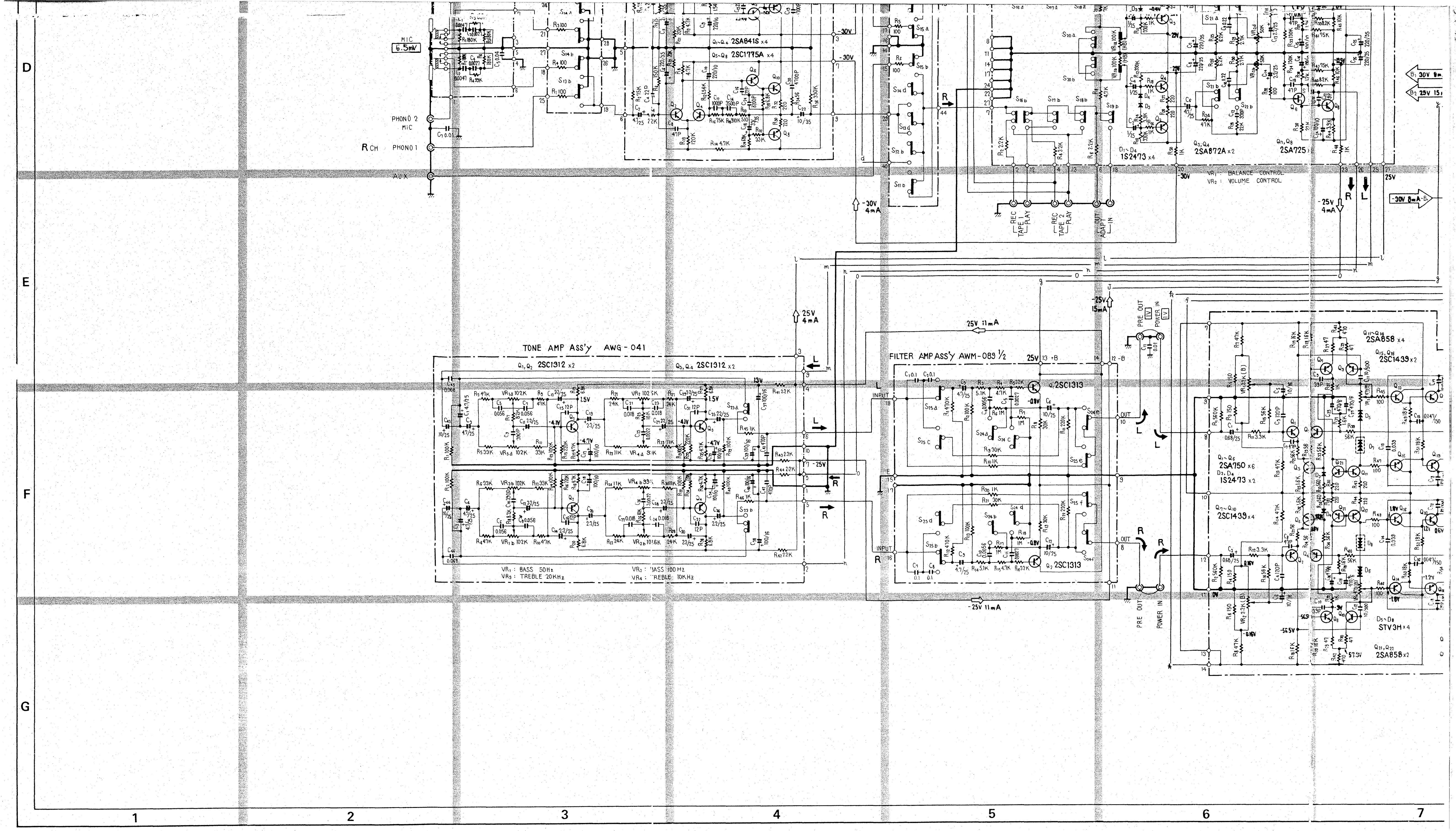
Symbol	Description	Part No.
	Operating instructions	ARB-165
	Packing case	AHD-339

AM/FM STEREO RECEIVER

SX-1050 S

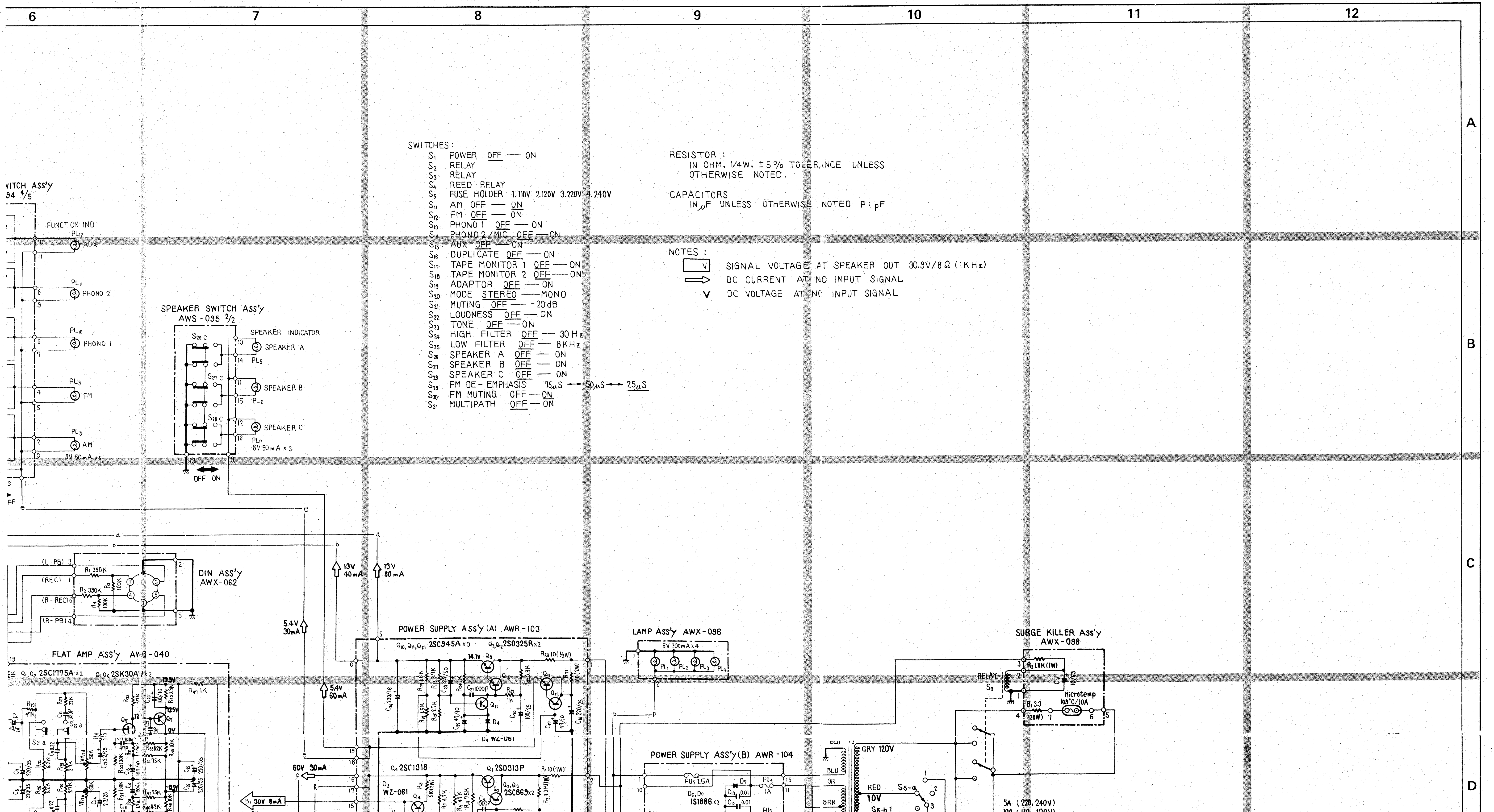


1
2
3
4
5
6
7
A
B
C
D
TUNER ASS'y AWE-067
FM DET OUT
FUNCTION SWITCH ASS'y AWS-094 5/5
TUNING METER
FUNCTION SWITCH ASS'y AWS-094 4/5
FUNCTION IND
FILTER AMP ASS'y AWM-089 2/2
SPEAKER SWITCH ASS'y AWS-095 2/2
75Ω UNBALANCE
300Ω BALANCE
GND
AM
3SK45
2SC717
2SC461
HA1138
HA1137
TA7061AP
1S2076
1S2473
2SC1312
HA1196
2SC945A x3
2SC945A
DISCRE OUT
AUTO IN
MUT OUT
MULTI PATH
MUT IN
Reed Relay
L.P.F
L OUT
R OUT
AUX
PHONO 2
PHONO 1
FM
AM
8V 50mA x5
ON
OFF
AM OUT
AM LOCAL
S.METER
ST IND 8V 50mA
TO+B EXCEPT FM
VCO KILLER
VCO T.P
FM DE-EMPHASIS ASS'y AWX-101
75μS
50μS
25μS
B2 25V 15mA
SIGNAL METER
FUNCTION SWITCH ASS'y AWS-094 3/5
B1 -30V 8mA
30V 4mA
30V 8mA B1
FUNCTION SWITCH ASS'y AWS-094 2/5
REC
TAPE PLAY
TAPE 2
ADAP IN
OUT
150mV
DIN ASS'y AWX-062
(L-PB)
(REC)
(R-REC)
(R-PB)
EQUALIZER AMP ASS'y AWF-020
2SA892A x2
2SA841S x4
2SC1775A x4
FUNCTION SWITCH ASS'y AWS-094 1/5
MIC JACK ASS'y AWX-097
FLAT AMP ASS'y AWG-040
2SC1775A x2
2SK30A x2
2SA872A x2
2SA725 x2
1S2473 x4
VR1: BALANCE CONTROL
VR2: VOLUME CONTROL
L CH
R CH
AUX 150mV
PHONO 1 2.5mV
PHONO 2
MIC 6.5mV
B1 30V
B2 25V 15mA


D
E
F
G
1
2
3
4
5
6
7
MIC
6.5mV
PHONO 2
MIC
R CH
PHONO 1
AUX
Q1~Q4 2SA841S x4
Q5~Q8 2SC1775A x4
-30V
-30V 4mA
REC TAPE 1 PLAY
REC TAPE 2 PLAY
ADAPT OUT IN
D1~D4 1S2473 x4
Q3, Q4 2SA872A x2
Q7, Q8 2SA725 x2
VR1 : BALANCE CONTROL
VR2 : VOLUME CONTROL
-25V 4mA
R
L
B1 30V 8m
B2 25V 15
-30V 8mA B
25V
25V 4mA
TONE AMP ASS'Y AWG-041
Q1, Q2 2SC1312 x2
Q3, Q4 2SC1312 x2
VR1 : BASS 50Hz
VR3 : TREBLE 20KHz
VR2 : BASS 100Hz
VR4 : TREBLE 10KHz
25V 11mA
-25V 11mA
FILTER AMP ASS'Y AWM-089 1/2
Q1 2SC1313
Q2 2SC1313
INPUT
OUT
-25V 15mA
PRE OUT
POWER IN
Q11~Q14 2SA858 x4
Q15, Q16 2SC1439 x2
Q1~Q6 2SA750 x6
D3, D4 1S2473 x2
Q7~Q10 2SC1439 x4
D5~D8 STV3H x4
Q21, Q22 2SA858 x2

1

PIONEER


6
7
8
9
10
11
12
A
B
C
D
FUNCTION IND
AUX
PHONO 2
PHONO 1
FM
AM
8V 50mA ×5
SPEAKER SWITCH ASS'y AWS-095 2/2
SPEAKER INDICATOR
SPEAKER A
SPEAKER B
SPEAKER C
8V 50mA ×3
OFF ON
DIN ASS'y AWX-062
(L-PB)
(REC)
(R-REC)
(R-PB)
13V 40mA
13V 80mA
5.4V 30mA
5.4V 60mA
POWER SUPPLY ASS'y (A) AWR-103
Q10, Q11, Q13 2SC945A ×3
Q9, Q12 2SD325R ×2
Q4 2SC1318
Q1 2SD313P
Q2, Q3 2SC869 ×2
D4 WZ-061
D3 WZ-061
FLAT AMP ASS'y AWG-040
Q1, Q2 2SC1775A ×2
Q5, Q6 2SK30A ×2
60V 30mA
30V 9mA
LAMP ASS'y AWX-096
8V 300mA ×4
POWER SUPPLY ASS'y (B) AWR-104
FU3 1.5A
FU4 1A
D6, D7 1S1886 ×2
SURGE KILLER Ass'y AWX-098
RELAY S2
Microtemp 103°C/10A
GRY 120V
BLU
OR
RED
GRN
10V
5A (220, 240V)

SWITCHES:

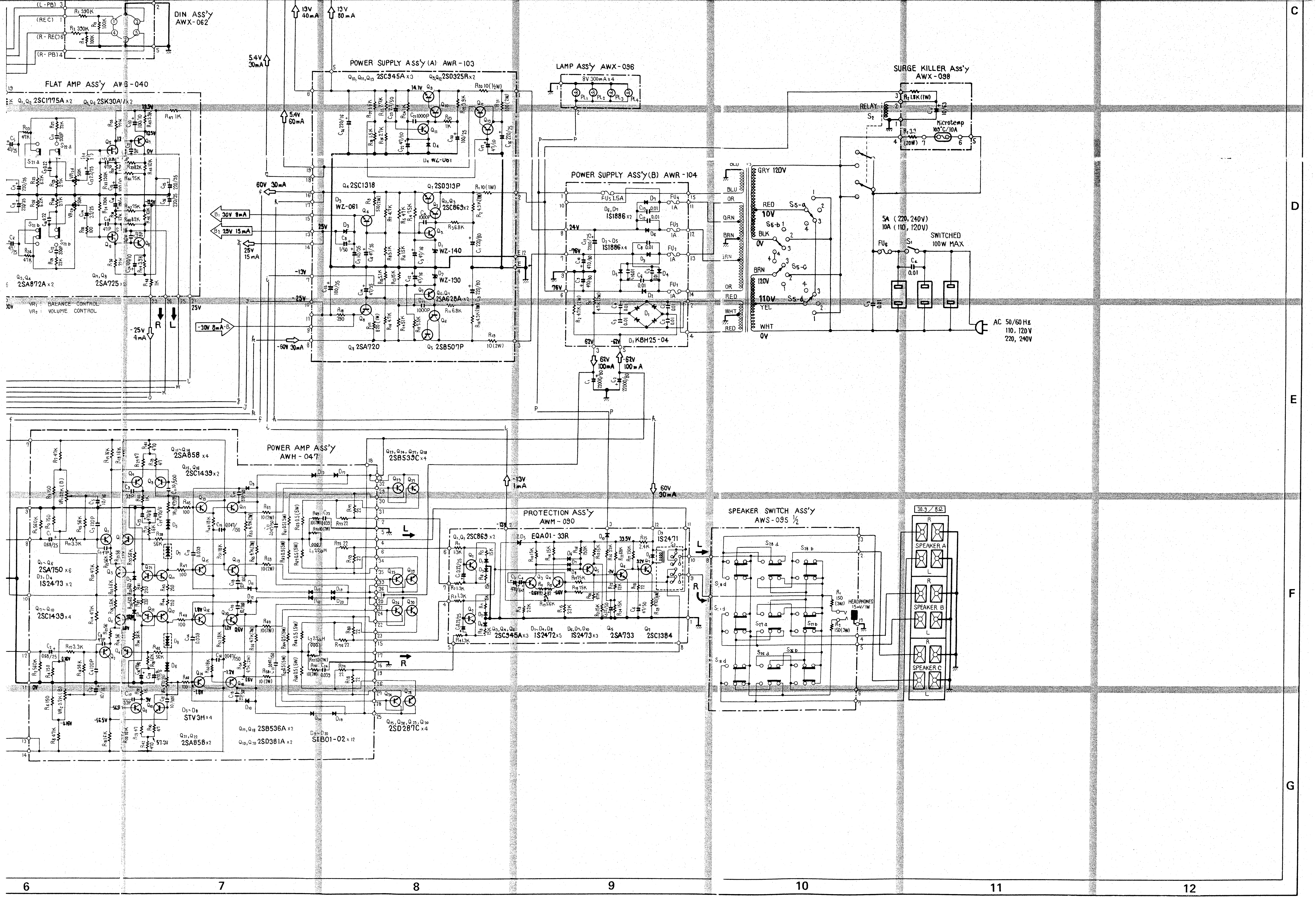
- S_1 POWER OFF — ON
- S_2 RELAY
- S_3 RELAY
- S_4 REED RELAY
- S_5 FUSE HOLDER 1. 110V 2. 120V 3. 220V 4. 240V
- S_{11} AM OFF — ON
- S_{12} FM OFF — ON
- S_{13} PHONO 1 OFF — ON
- S_{14} PHONO 2 / MIC OFF — ON
- S_{15} AUX OFF — ON
- S_{16} DUPLICATE OFF — ON
- S_{17} TAPE MONITOR 1 OFF — ON
- S_{18} TAPE MONITOR 2 OFF — ON
- S_{19} ADAPTOR OFF — ON
- S_{20} MODE STEREO — MONO
- S_{21} MUTING OFF — -20dB
- S_{22} LOUDNESS OFF — ON
- S_{23} TONE OFF — ON
- S_{24} HIGH FILTER OFF — 30Hz
- S_{25} LOW FILTER OFF — 8KHz
- S_{26} SPEAKER A OFF — ON
- S_{27} SPEAKER B OFF — ON
- S_{28} SPEAKER C OFF — ON
- S_{29} FM DE-EMPHASIS 75µS ↔ 50µS ↔ 25µS
- S_{30} FM MUTING OFF — ON
- S_{31} MULTIPATH OFF — ON

RESISTOR:
IN OHM, 1/4W, ±5% TOLERANCE UNLESS OTHERWISE NOTED.

CAPACITORS
IN µF UNLESS OTHERWISE NOTED P: pF

NOTES:

- ▭V SIGNAL VOLTAGE AT SPEAKER OUT 30.9V/8Ω (1KHz)
- ⇨ DC CURRENT AT NO INPUT SIGNAL
- V DC VOLTAGE AT NO INPUT SIGNAL

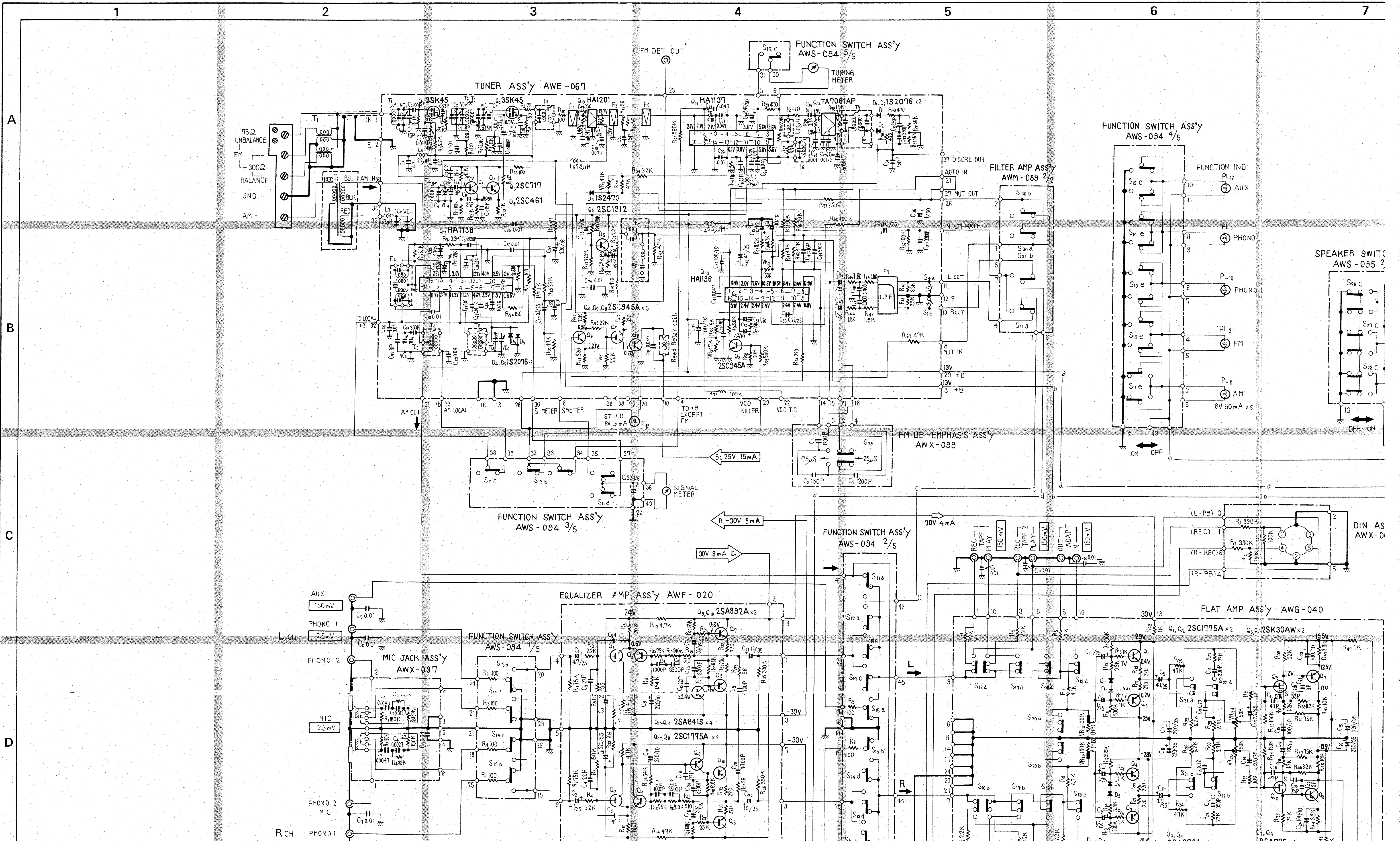

DIN ASS'y AWX-062
(L-PB)
(REC)
(R-REC)
(R-PB)
FLAT AMP ASS'y AWG-040
Q1, Q2 2SC1775A x2
Q5, Q6 2SK30A x2
Q3, Q4 2SA872A x2
Q7, Q8 2SA725 x2
VR1 : BALANCE CONTROL
VR2 : VOLUME CONTROL
13V 40mA
13V 80mA
5.4V 30mA
5.4V 60mA
POWER SUPPLY ASS'y (A) AWR-103
Q10, Q11, Q13 2SC945A x3
Q9, Q12 2SD325R x2
D4 WZ-061
Q4 2SC1318
Q1 2SD313P
Q2, Q3 2SC869 x2
D3 WZ-061
D1 WZ-140
D2 WZ-130
Q6, Q7 2SA628A x2
Q8 2SA720
Q5 2SB507P
60V 30mA
B1 30V 8mA
B2 25V 15mA
25V 15mA
-30V 8mA
-50V 30mA
-25V 4mA
LAMP ASS'y AWX-096
8V 300mA x4
POWER SUPPLY ASS'y (B) AWR-104
D6, D7 1S1886 x2
D2~D5 1S1886 x4
D1 KBH25-04
FU5 1.5A
62V 100mA
-62V 100mA
GRY 120V
BLU
OR
GRN
BRN
RED
BLK
WHT
YEL
10V
0V
110V
120V
S5-a
S5-b
S5-c
S5-d
SURGE KILLER Ass'y AWX-098
RELAY
S2
Microtemp 105°C/10A
5A (220, 240V)
10A (110, 120V)
SWITCHED 100W MAX
FU6
S1
AC 50/60Hz 110, 120V 220, 240V
POWER AMP ASS'y AWH-047
Q11~Q14 2SA858 x4
Q15, Q16 2SC1439 x2
Q23, Q24, Q27, Q28 2SB539C x4
Q1~Q6 2SA750 x6
D3, D4 1S2473 x2
Q7~Q10 2SC1439 x4
D5~D8 STV3H x4
Q17, Q18 2SB536A x2
Q19, Q20 2SD381A x2
Q21, Q22 2SA858 x2
D9~D20 S1B01-02 x12
Q25, Q26, Q29, Q30 2SD287C x4
L
R
-13V 1mA
60V 30mA
PROTECTION ASS'y AWM-090
Q1, Q2 2SC869 x2
EQA01-33R
Q3, Q4, Q6 2SC945A x3
D1~D4, D8 1S2472 x5
D6, D7, D10 1S2473 x3
Q5 2SA733
Q7 2SC1384
S24 71
SPEAKER SWITCH ASS'y AWS-095 1/2
HEADPHONES
SPEAKER A
SPEAKER B
SPEAKER C
C
D
E
F
G
6
7
8
9
10
11
12

2

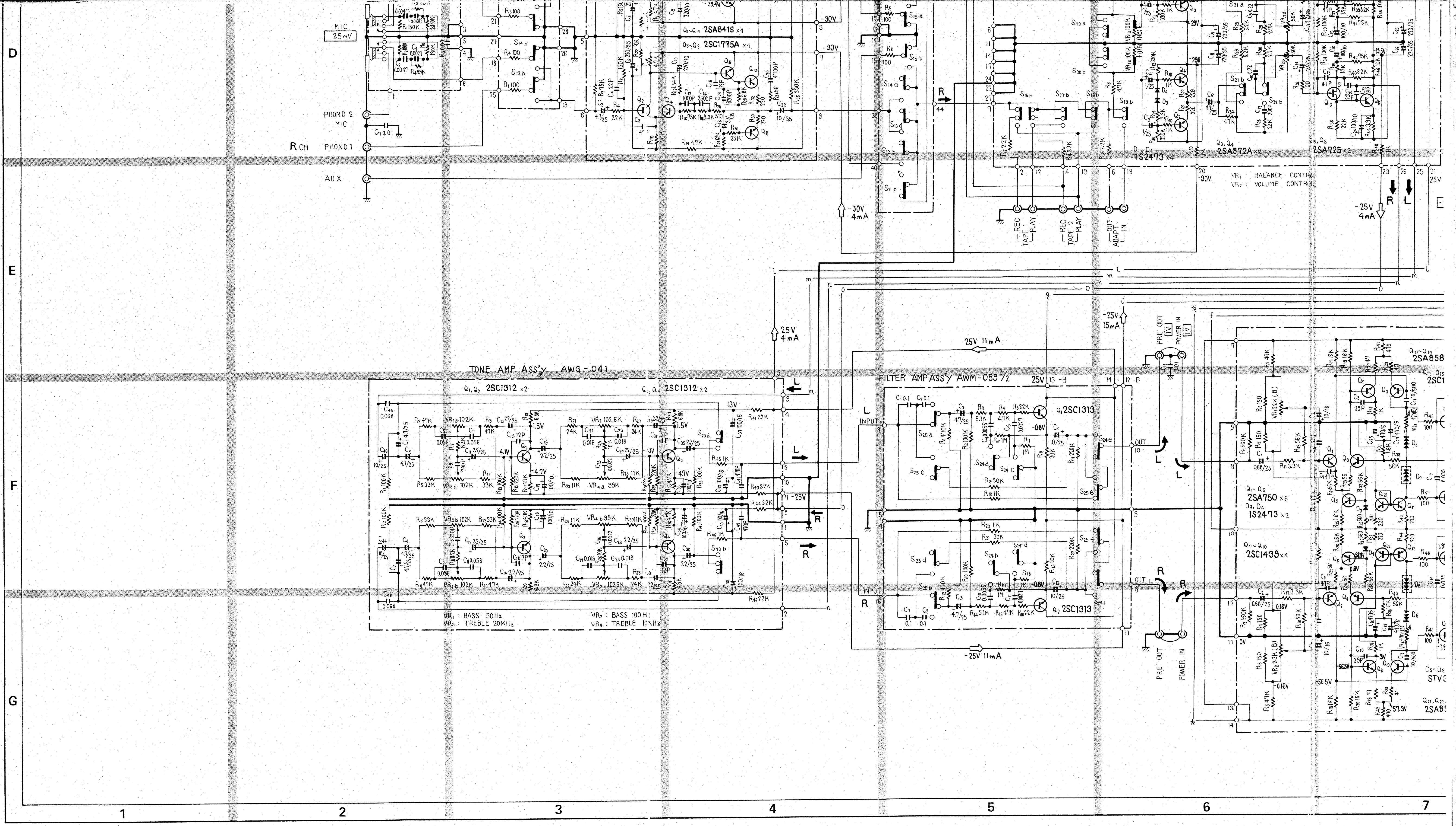
AM/FM STEREO RECEIVER

SX-1050

KCU



1
2
3
4
5
6
7
A
B
C
D
TUNER ASS'y AWE-067
FM DET OUT
FUNCTION SWITCH ASS'y AWS-094 5/5
TUNING METER
FUNCTION SWITCH ASS'y AWS-094 4/5
FILTER AMP ASS'y AWM-089 2/2
SPEAKER SWITCH ASS'y AWS-095
FUNCTION IND
AUX
PHONO
FM
AM
8V 50mA x5
75Ω UNBALANCE
FM
300Ω BALANCE
GND
AM
3SK45
HA1201
HA1137
TA7061AP
HA1138
HA1196
2SC717
2SC461
2SC1312
2SC945A
37 DISCRE OUT
AUTO IN
MUT OUT
MULTI PATH
L OUT
R OUT
MUT IN
L.P.F
FM DE-EMPHASIS ASS'y AWX-099
75μS
25μS
AM CUT
AM LOCAL
S. METER
SMETER
ST IND 8V 51mA
TO +B EXCEPT FM
VCO KILLER
VCO T.P.
B2 25V 15mA
SIGNAL METER
FUNCTION SWITCH ASS'y AWS-094 3/5
-B -30V 8mA
30V 8mA B1
30V 4mA
FUNCTION SWITCH ASS'y AWS-094 2/5
REC TAPE 1 PLAY 150mV
REC TAPE 2 PLAY 150mV
OUT ADAPT IN 150mV
DIN ASS'y AWX-0
(L-PB)
(REC)
(R-REC)
(R-PB)
AUX 150mV
PHONO 1
L CH 2.5mV
PHONO 2
MIC JACK ASS'y AWX-097
MIC 2.5mV
PHONO 2 MIC
R CH PHONO 1
FUNCTION SWITCH ASS'y AWS-094 1/5
EQUALIZER AMP ASS'y AWF-020
Q9,Q10 2SA892A x2
Q1~Q4 2SA841S x4
Q5~Q8 2SC1775A x4
24V
-30V
FLAT AMP ASS'y AWG-040
Q1,Q2 2SC1775A x2
Q5,Q6 2SK30AW x2
30V
29V
-29V
L
R
ON
OFF


D
E
F
G
1
2
3
4
5
6
7
MIC
2.5mV
PHONO 2
MIC
R CH
PHONO 1
AUX
Q1~Q4 2SA841S x4
Q5~Q8 2SC1775A x4
-30V
R
REC TAPE 1 PLAY
REC TAPE 2 PLAY
OUT ADAPT IN
D1~D4 1S2473 x4
Q3, Q4 2SA872A x2
Q7, Q8 2SA725 x2
VR1 : BALANCE CONTROL
VR2 : VOLUME CONTROL
-30V 4mA
-25V 4mA
25V 4mA
TONE AMP ASS'Y AWG-041
Q1, Q2 2SC1312 x2
Q3, Q4 2SC1312 x2
VR1 : BASS 50Hz
VR3 : TREBLE 20KHz
VR2 : BASS 100Hz
VR4 : TREBLE 10KHz
L
R
FILTER AMP ASS'Y AWM-089 1/2
Q1 2SC1313
Q2 2SC1313
INPUT
OUT
25V 11mA
-25V 11mA
-25V 15mA
PRE OUT
POWER IN
Q1~Q6 2SA750 x6
D3, D4 1S2473 x2
Q7~Q10 2SC1439 x4
Q11~Q14 2SA858
D5~D8 STV3
Q21, Q22 2SA85

3

6	7	8	9	10	11	12

SWITCHES :

S_1 POWER OFF — ON
S_2 RELAY
S_3 RELAY
S_4 REED RELAY

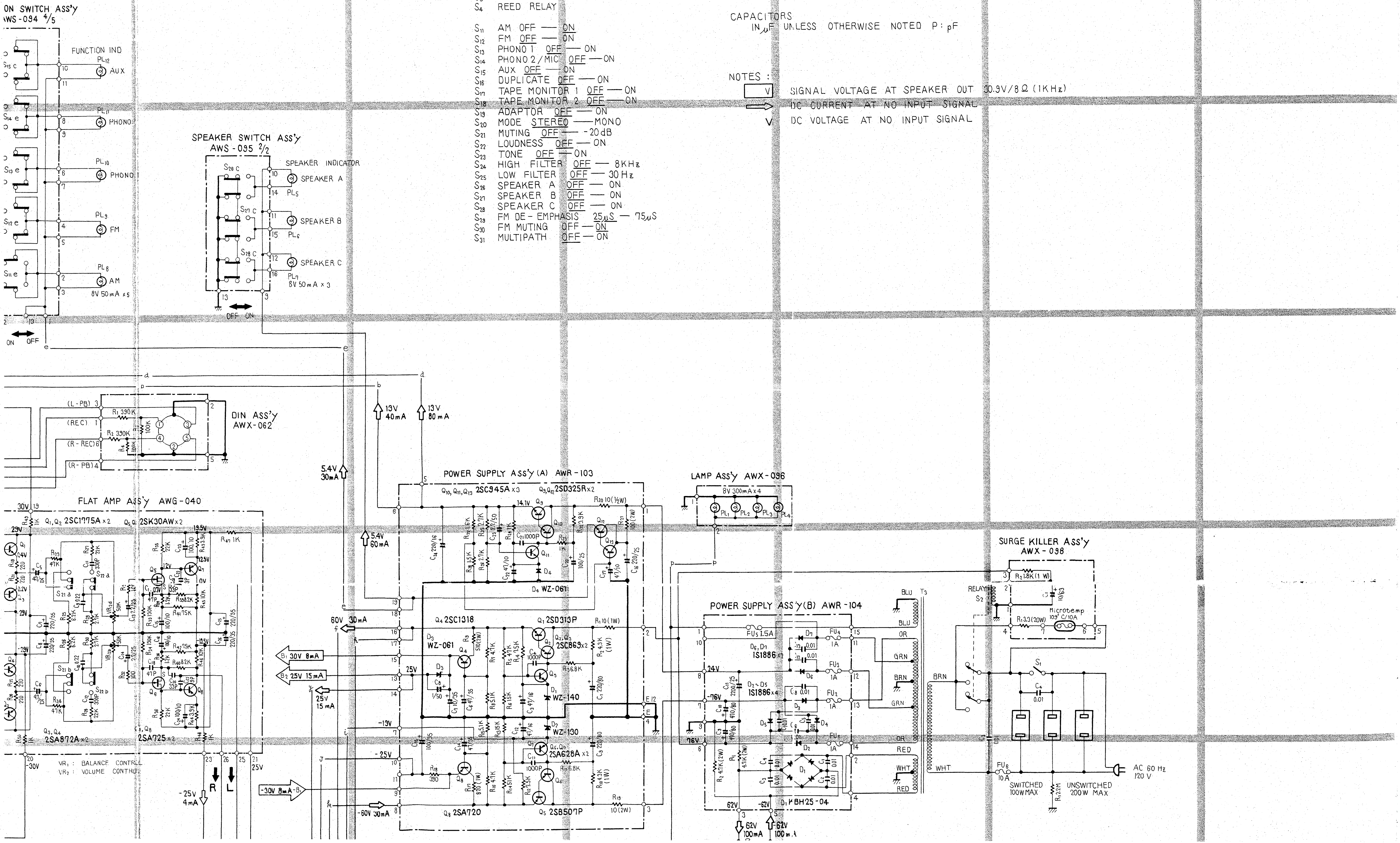
S_{11} AM OFF — ON
S_{12} FM OFF — ON
S_{13} PHONO 1 OFF — ON
S_{14} PHONO 2 / MIC OFF — ON
S_{15} AUX OFF — ON
S_{16} DUPLICATE OFF — ON
S_{17} TAPE MONITOR 1 OFF — ON
S_{18} TAPE MONITOR 2 OFF — ON
S_{19} ADAPTOR OFF — ON
S_{20} MODE STEREO — MONO
S_{21} MUTING OFF — -20dB
S_{22} LOUDNESS OFF — ON
S_{23} TONE OFF — ON
S_{24} HIGH FILTER OFF — 8KHz
S_{25} LOW FILTER OFF — 30Hz
S_{26} SPEAKER A OFF — ON
S_{27} SPEAKER B OFF — ON
S_{28} SPEAKER C OFF — ON
S_{29} FM DE-EMPHASIS 25μS — 75μS
S_{30} FM MUTING OFF — ON
S_{31} MULTIPATH OFF — ON

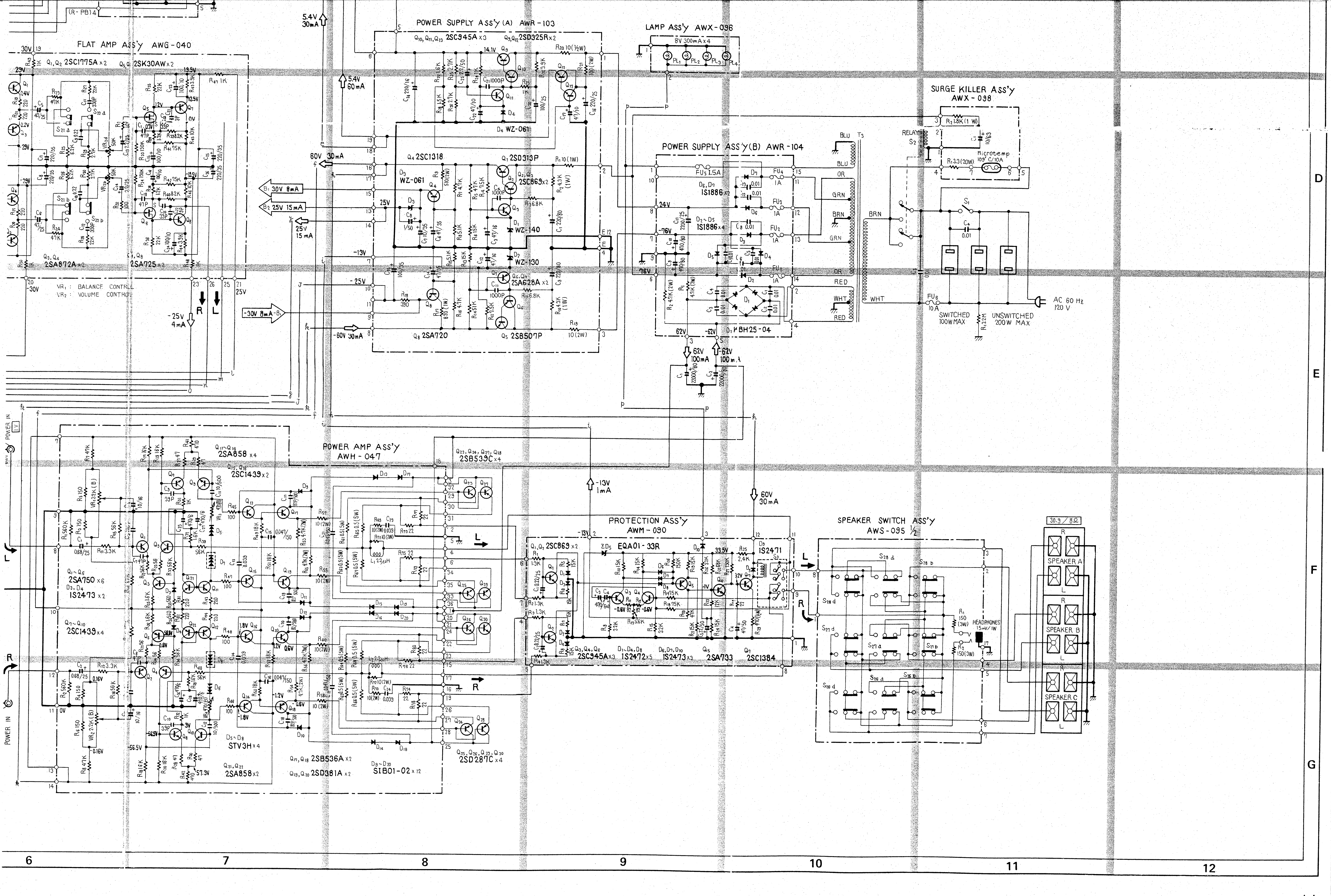
RESISTOR :
IN OHM, 1/4W, ±5% TOLERANCE UNLESS OTHERWISE NOTED.

CAPACITORS
IN μF UNLESS OTHERWISE NOTED P : pF

NOTES :

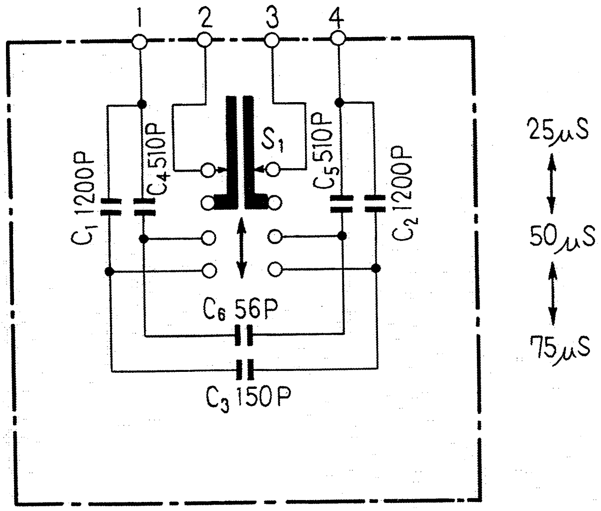
☐V SIGNAL VOLTAGE AT SPEAKER OUT 30.9V/8Ω (1KHz)
⇨ DC CURRENT AT NO INPUT SIGNAL
V DC VOLTAGE AT NO INPUT SIGNAL


ON SWITCH ASS'Y
AWS-094 4/5
FUNCTION IND
PL12 AUX
PL11 PHONO 2
PL10 PHONO 1
PL9 FM
PL8 AM
8V 50mA x5
ON OFF
SPEAKER SWITCH ASS'Y
AWS-095 2/2
SPEAKER INDICATOR
PL5 SPEAKER A
PL6 SPEAKER B
PL7 SPEAKER C
8V 50mA x 3
OFF ON
DIN ASS'Y
AWX-062
(L-PB) 3
(REC) 1
(R-REC) 6
(R-PB) 4
R1 390K
R2 330K
13V 40mA
13V 80mA
5.4V 30mA
5.4V 60mA
FLAT AMP ASS'Y AWG-040
Q1, Q2 2SC1775A x2
Q5, Q6 2SK30AW x2
Q3, Q4 2SA872A x2
Q7, Q8 2SA725 x2
VR1 : BALANCE CONTROL
VR2 : VOLUME CONTROL
-25V 4mA
R L
POWER SUPPLY ASS'Y (A) AWR-103
Q10, Q11, Q13 2SC945A x3
Q9, Q12 2SD325R x2
Q4 2SC1318
Q1 2SD313P
Q2, Q3 2SC869 x2
Q6, Q7 2SA628A x2
Q8 2SA720
Q5 2SB507P
D3 WZ-061
D4 WZ-061
D1 WZ-140
D2 WZ-130
60V 30mA
B1 30V 8mA
B2 25V 15mA
25V 15mA
-30V 8mA B3
-60V 30mA
-13V
-25V
LAMP ASS'Y AWX-096
8V 300mA x4
PL1 PL2 PL3 PL4
POWER SUPPLY ASS'Y (B) AWR-104
FU5 1.5A
D6, D7 1S1886 x2
D2~D5 1S1886 x4
D1 KBH25-04
FU4 1A
FU3 1A
FU2 1A
FU1 1A
24V
-76V
76V
62V
-62V
62V 100mA
-62V 100mA
T3
BLU OR GRN BRN GRN OR RED WHT RED
SURGE KILLER ASS'Y
AWX-098
R2 1.8K (1W)
RELAY S2
R1 3.3 (20W)
Microtemp 109° C/10A
C1 10/63
S1
C4 0.01
FU6 10A
SWITCHED 100W MAX
UNSWITCHED 200W MAX
AC 60 Hz 120 V

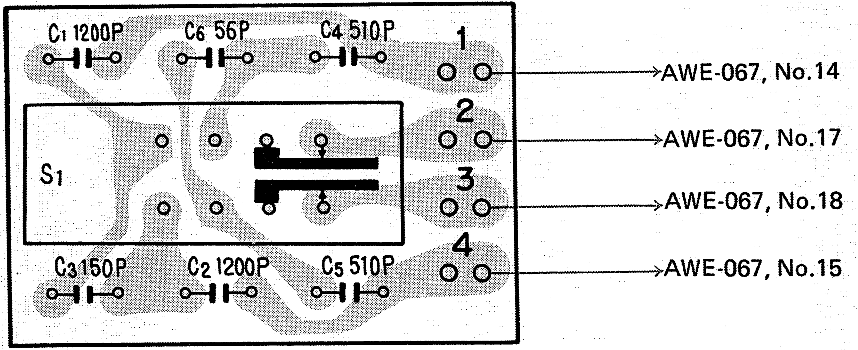


FLAT AMP ASS'y AWG-040
Q1, Q2 2SC1775A x2
Q5, Q6 2SK30AW x2
Q3, Q4 2SA872A x2
Q7, Q8 2SA725 x2
VR1 : BALANCE CONTROL
VR2 : VOLUME CONTROL
-25V 4mA
25V
-30V
30V
POWER SUPPLY ASS'y (A) AWR-103
Q10, Q11, Q13 2SC945A x3
Q9, Q12 2SD325R x2
D4 WZ-061
Q4 2SC1318
Q1 2SD313P
Q2, Q3 2SC869 x2
D3 WZ-061
D1 WZ-140
D2 WZ-130
Q6, Q7 2SA628A x2
Q8 2SA720
Q5 2SB507P
5.4V 30mA
5.4V 60mA
60V 30mA
B1 30V 8mA
B2 25V 15mA
25V 15mA
-30V 8mA -B1
-60V 30mA
-13V
-25V
LAMP ASS'y AWX-096
8V 300mA x4
PL1
PL2
PL3
PL4
SURGE KILLER ASS'y AWX-098
R2 1.8K (1W)
RELAY
S2
R1 3.3 (20W)
Microtemp 109° C/10A
POWER SUPPLY ASS'y (B) AWR-104
FU5 1.5A
D6, D7 1S1886 x2
D2~D5 1S1886 x4
D1 KBH25-04
24V
-76V
76V
62V
-62V
62V 100mA
-62V 100mA
BLU
OR
GRN
BRN
RED
WHT
T3
FU8 10A
S1
SWITCHED 100W MAX
UNSWITCHED 200W MAX
AC 60 Hz 120 V
POWER AMP ASS'y AWH-047
Q11~Q14 2SA858 x4
Q15, Q16 2SC1439 x2
Q23, Q24, Q27, Q28 2SB539C x4
Q1~Q6 2SA750 x6
D3, D4 1S2473 x2
Q7~Q10 2SC1439 x4
D5~D8 STV3H x4
Q21, Q22 2SA858 x2
Q17, Q18 2SB536A x2
Q19, Q20 2SD381A x2
D9~D20 S1B01-02 x12
Q25, Q26, Q29, Q30 2SD287C x4
L1 2.2μH
L2 2.2μH
POWER IN
L
R
-13V 1mA
60V 30mA
PROTECTION ASS'y AWM-090
Q1, Q2 2SC869 x2
ZD5 EQA01-33R
D9 1S2471
Q3, Q4, Q6 2SC945A x3
D1~D4, D8 1S2472 x5
D6, D7, D10 1S2473 x3
Q5 2SA733
Q7 2SC1384
SPEAKER SWITCH ASS'y AWS-095 1/2
S28 a
S28 b
S28 d
S27 a
S27 b
S27 d
S26 a
S26 b
S26 d
HEADPHONES 15mV/1W
30.9 / 8Ω
SPEAKER A
SPEAKER B
SPEAKER C
D
E
F
G
6
7
8
9
10
11
12

DE-EMPHASIS SWITCH ASSEMBLY (AWX-101)


1
2
3
4
S1
C1 1200P
C4 510P
C5 510P
C2 1200P
C6 56P
C3 150P
25μS
50μS
75μS

Foil side


C1 1200P
C6 56P
C4 510P
1
2
3
4
S1
C3 150P
C2 1200P
C5 510P
AWE-067, No.14
AWE-067, No.17
AWE-067, No.18
AWE-067, No.15

Parts List of De-emphasis Switch Assembly (AWX-101)

CAPACITORS

Symbol	Description			Part No.
C1	Ceramic	1200p	50V	CKDYA 122J 50
C2	Ceramic	1200p	50V	CKDYA 122J 50
C3	Ceramic	150p	50V	CCDSL 151K 50
C4	Styrol	510p	50V	CQSA 511J 50
C5	Styrol	510p	50V	CQSA 511J 50
C6	Ceramic	56p	50V	CCDSL 560K 50

SWITCH

Symbol	Description	Part No.
S1	Slide switch	ASH-017